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## FINANCIAL AND OPERATING RESULTS OF THE BRITISH GROUP RAILWAYS IN 1933

Our annual analysis of the accounts and statistics of the British group railways, as shown in the published reports for the past year, is presented as a Supplement to each copy of this week's issue. Extra copies of the Supplement can be supplied, price 1s. each

## Drastic French Railway Measures

It is in accord with the current inversion of common sense that the more highly efficient a productive organisation becomes the greater seems to grow the risk of its financial collapse. Our sympathy goes out to the French railways in their present plight, an outline of which will be found in a message on page 731 from our Paris correspondent. Despite the fact that the railway services in France have been progressively improved since the war, until now they are second to none in Europe, and despite the fact that, by rationalisation, costs are estimated to have been cut in three years by over £11,000,000 a year, and staffs reduced in the same period by 60,000, the financial condition of the great railway systems of France has become so bad that 6,000 miles of line are now to be closed, large numbers of employees dispensed with, and wages and pensions reduced. These sacrifices are the reward which diligent attention to duty and ingenious enterprise in achieving higher efficiency have brought. Furthermore, such drastic measures are added evidence that ours is not the only country where the monetary system is failing so to serve industry that those who wish may consume the facilities nowadays so abundantly available. It is fundamentally unsound, however expedient it may appear temporarily, that a shrinking process should be applied to industry before potential want is satisfied.

## Agreed Charges

An agreed charge of particular interest was sanctioned on Tuesday by the Railway Rates Tribunal. This was a charge agreed between the four amalgamated companies, the London Passenger Transport Board and the Mersey Railway Company on the one hand, and F. W. Woolworth & Co. Ltd. on the other. Previous agreed charges which the Tribunal has approved have been on a tonnage basis, but in this instance it was a payment of £4 5s. per cent. of the purchase price paid by Woolworth & Co. for the goods to which the charge was applicable for the period February 1 to December 31, 1934. The hearing of the application had occupied the tribunal for nearly five days in March when objections were raised by various representative bodies of traders. Among the objections were that this agreed charge would prevent traders who had to pay the ordinary charges from effective competition with Woolworth & Co., and that the granting of such a charge might result in numerous applications of a similar character which would tend to force down the scale of rates generally and so reduce railway net revenues. The second objection, as the tribunal pointed out, was equally applicable to exceptional rates. As to the first, agreed charges with Woolworth on a percentage basis had been tested in 1932 and 1933, and there was no evidence that the businesses of other traders had suffered therefrom, however much they might have been affected by Woolworth's activities generally. It is a matter of interest to note that one of the witnesses admitted he had himself an arrangement with road hauliers for a charge of 2½ per cent. on purchase price.

\* \* \* \*

## The Week's Traffics

Last week's traffics of the four amalgamated companies and also of the Irish railways compare with a week in 1933 which included Easter Monday, and passenger train earnings are in all cases down, with goods and coal receipts up. On the heavy goods carrying lines the increase in merchandise and coal more than makes up for the smaller passenger train earnings, but this has not been the case on the Southern. The overall increase of £450 on the Great Northern Railway (Ireland) for the past week is the more satisfactory as it compares with a week in 1933 when normal traffic had been resumed after the strike. The aggregate earnings for the 16 weeks are now £141,000 above those for the corresponding period of 1933.

	16th Week				Inc. or dec.	
	Pass	&c.	Goods, &c.	Coal, &c.	Total	Year to date
L.M.S.R. ..	43,000	112,000	95,000	164,000	1,029,000	+ 6.25
L.N.E.R. ..	34,000	43,000	73,000	82,000	1,048,000	+ 8.74
G.W.R. ..	26,000	54,000	44,000	72,000	343,000	+ 5.03
S.R. ....	37,000	10,500	11,500	15,000	119,000	+ 2.24

London Passenger Transport Board earnings for the past week were £532,800, making £21,032,700 for the 42 weeks of the financial year. Mersey Railway earnings for the week were down £423, but for the year to date there is an increase of £3,289.

\* \* \* \*

## Indian Accident Statistics, 1932-33

During the year ending March 31, 1933, in accidents to trains, rolling-stock, permanent way, &c., there were on all railways in India, six passengers killed and 61 injured. As the number of passenger-miles amounted to 16,890,772,000, there was thus only one passenger killed in every 2,815,000,000 passenger-miles, and one in 277,000,000 passenger-miles injured. The corresponding figures for railway servants were eight killed and seventy-nine injured in train accidents. Accident casualties on Indian railways are steadily decreasing. During the five

years up to and including 1932/33 the following numbers of passengers were killed and injured in accidents of all kinds on railway premises:—

Year	Killed	Injured
1928-29 .. ..	418	1,368
1929-30 .. ..	358	1,126
1930-31 .. ..	337	1,037
1931-32 .. ..	255	912
1932-33 .. ..	231	843

So, although it is true that the number of passengers carried has fallen in the last few years, it has not done so in anything like proportion to the figures above. On Class I railways, 182 railway servants were killed in accidents due to the movement of trains and vehicles exclusive of train accidents, and of these, 121 deaths were entirely accidental, 51 were due to lack of caution or misconduct of the employee himself, nine due to breach of rules or want of caution of other employees, and only one was the result either of defective apparatus or system of working, dangerous places or conditions of work or want of rules or systems of working. This record for 1932-33, taken as a whole, is very satisfactory and illustrates the safety of Indian railways.

\* \* \* \*

#### Air-Conditioning Costs

Maintenance costs of the air-conditioning equipment which is rapidly becoming a standard feature of American coaches have recently been published by the *Railway Age*. These figures concern the equipment applied by the same manufacturer to one car in 1930, 38 cars in 1931, 142 cars in 1932, and more than 200 cars, operating over seven different railroads, by 1933. The cars had travelled more than 23,000,000 miles by the date when the statistics were prepared, and it was found that the total cost of maintaining the equipment, some of which had been in use through three seasons, was \$135. None of the refrigerator batteries, pistons, rings, valves, shafts, or other major parts have been found defective, or have needed replacement. The loss of refrigerant from all causes, chiefly valve-stem leakage, during the 1932-33 season did not average more than 1½ lb. per car per month, entailing a cost of \$1 per car per month. The records of one railroad for 1933 show that the total costs of air-conditioning, including labour cost for inspection, amounted only to \$3.60 per car per month. American air-conditioning goes considerably further than anything of the kind yet tried elsewhere, for in hot weather the injected air is cooled and de-humidified before introduction to the coaches.

\* \* \* \*

#### Norwegian State Railways in 1933

The results of the working of the Norwegian State Railways for the period 1932-33 are now available. The length worked remained the same as in the previous year, no new sections being opened. Six railmotors—2 being electric—1 passenger car and 64 freight vehicles were obtained and 5 steam locomotives, 1 railcar, 60 passenger cars and 333 goods vehicles were disposed of. Exclusive of interest on capital, the general working results showed a reduced deficit, for although total receipts fell from 67,382,754 Kr. to 65,206,258 Kr., working expenses were brought down from 78,513,823 Kr. to 73,214,735 Kr. These figures include some items not directly connected with actual operation, and allowing for them the net operating loss becomes 7,393,347 Kr., as against 11,282,820 Kr. in 1932. Passenger receipts improved somewhat, but parcels and express goods showed almost no change. Heavy goods and cattle traffic receipts declined considerably, the general depression being felt

very much in certain trades. Working expenditure was reduced 5.4 per cent. Coal for steam locomotives cost a little more, but the charges for electric power fell, so that electric locomotive expenses showed a reduction from 1.16 Kr. to 0.87 Kr. per kilometre run. Permanent way and works maintenance charges were reduced by 9.4 per cent. Passenger-kilometres rose from 509,860,115 to 521,765,231 and tonne-kilometres freight from 437,852,000 to 442,187,000. The railways own motor van services have been satisfactorily developed, and the coal carrying boat *Bruse*, purchased in 1915, has continued to give efficient service. The numbers of the staff fell from 12,744 to 12,383. Of these, 4,734 were engaged on the stations, 2,001 in the locomotive department and 2,209 on permanent way and works.

\* \* \* \*

#### "All In" Swiss Tickets

A novel proposal for touring facilities in Switzerland was announced in our issue of March 2. In future it will be possible for the traveller to go to the booking office of any one of 792 Swiss stations, as well as to the Swiss touring agencies in other countries, and to book for a journey *tout compris*, or all-in, as we should say. Included in the price of his ticket will be railway ticket, hotel accommodation, breakfast, lunch and dinner—but drinks not included, the announcement hastens to add, lest hopes have been unduly raised—lighting, heating, tips, transport of luggage between station and hotel, and the ordinary small *taxes de séjour*, or town taxes, levied by the resorts. Only the most expensive hotels will be excluded; the remainder will be divided into eight different categories, ranging in tariff from a minimum of 55 to a maximum of 120 Swiss francs for a week's stay, which will be the minimum period covered by the facility. Each ticket will have a detachable coupon to be handed to the hotelkeeper. This system came into force on April 1, and is accompanied by substantial reductions in Swiss railway fares. All booking clerks in Switzerland will be provided with reference literature to help them to advise their clients.

\* \* \* \*

#### More Comfort in German Thirds

When the old four class system was abolished on the German State Railway a few years ago, the arrangement adopted was to have second and third class only in the majority of trains. First class was provided in certain important expresses, running chiefly in the international services, of which a great many cross German territory. This change meant that in most of the trains there were either upholstered or non-upholstered seats to choose from, third class carriages having always had plain wooden seats on the German railways. It is now announced that to meet the demand for greater comfort in the third class, and to provide employment, the Government has decided that the work of upholstering a number of carriages of this class shall be undertaken forthwith. A start is to be made with the corridor carriages delivered since 1919 and the eight-wheeled carriages used on the semi-fast or E trains, but some of the older stock may also be transformed as well as certain railcars. As far as possible the third class carriages in any one train will all offer the same appointments. For the present the local electric trains round cities such as Berlin or Stuttgart will remain unaltered. Designs are to be prepared by the Central Designs Office, and the various divisional managements are to draw up a programme of work for submission to the General Manager. By helping to popularise the railway, this step should mitigate the competition of road vehicles, whose high standard of comfort has in the past

been a decisive factor in their favour from the point of view of many third-class passengers. (See illustration on p. 735.)

\* \* \*

### Road Accidents in America

Figures published at the end of last month by the National Safety Council of the United States show that at least 30,500 persons lost their lives in road accidents during 1933, an increase of 3.4 per cent. on the previous year. It is estimated that injuries for the same period totalled more than a million. Coming from a country where the development of motoring among all classes was earlier and more intensive than in Great Britain, such figures are not reassuring when it is remembered that we are ourselves following a similar path. In road travel, time and familiarity appear to be factors of danger instead of safety. To blame the multiplicity of vehicles for this is to condemn motor transport altogether. Development is inevitable, and there is no reason why the roads and their users should not be made fit to take advantage of it. America may take a lesson from its railways. The number of fatalities on railway property, and due to conditions under railway control, have declined by 86 per cent. within the last 20 years, and that decline has certainly not been accompanied by a decrease in the number or speed of trains. It is significant that the only class of accidents on the railway to increase are those at level crossings, and that despite heavy expenditure by the railways on the elimination or protection of road crossings.

\* \* \*

### Scientific Door Opening

The system of door control by means of a light ray and a photo-electric cell, which we believe has been used for some time in this country by a famous firm of caterers in order to relieve waitresses carrying trays of the necessity of opening and closing the doors communicating with the kitchens, has now found an interesting railway application in America. The *Railway Age* describes it at work in the waiting hall of the Pennsylvania terminal at New York where the doors leading to the concourse have been thus equipped. Guide rails at each entrance direct approaching passengers along a fixed path. In the upright supporting one guide-rail is located the light source; in the other is fitted the cell, the distance between them being 5 ft. Interruption of the light beam operates a series of relays controlling a compressed air engine which opens and closes the doors. Opening is rapid, and closing does not take place until the second beam has been passed and intercepted. Further, the doors will reopen immediately from any position on the approach of a second person. The device is much appreciated, both by waiting passengers, who no longer suffer from draughts, and by those who have to regulate the doors carrying hand luggage.

\* \* \*

### Radio for Freight Trains

A system of carrier-wave telephony developed in America to enable drivers and brakemen of lengthy freight trains to communicate with one another was described in an editorial note in THE RAILWAY GAZETTE of August 4, 1933. As the link between the locomotive and caboose was the track itself, messages could be exchanged successfully only where the rails were bonded. Our American contemporary, the *Railway Age*, now reports the installation of short-wave wireless telephony equipment on a freight train of the New Haven Railroad for a similar purpose. The apparatus is the product of the Westinghouse Company, which has been experimenting in this direction since 1925. The five-metre wavelength used retains the advantages of carrier-wave telephony while

the wireless principle eliminates its drawback of restricted applicability. Signals transmitted on this very high frequency tend to follow the run of the track, so that disturbance to private wireless sets near the railway is reduced to the minimum. A large number of transmitters may be operated on the five-metre band without mutual interference, provided they are a few miles apart. A six-volt accumulator supplies the power required for 30 hours before a recharge is necessary and the simplicity of the aerials on the locomotive and caboose compares favourably with the inductance coils slung close above the rails in the carrier-wave telephony system.

\* \* \*

### Bridge Building and Welding in Germany

An extensive programme of bridge strengthening and renewals in Germany, rendered necessary by the increasing weight and speed of trains is, according to *Die Bautechnik*, on the point of completion. The bridge department of the German State Railway is now engaged on designs for the bridges necessitated by the new motor road programme. New regulations and specifications for various kinds of structures have been drawn up and issued by the department in the last twelve months. Special attention is being paid to the question of welding, and lengthy experiments have been conducted at special testing stations and laboratories at Stuttgart and elsewhere. The conclusions so far reached are that welding is satisfactory for lattice girder bridges subject to small dynamic stresses varying little. For those subjected to heavy dynamic loads liable to considerable variation, it is not yet to be recommended, though further research may ultimately enable it to be. Plate girder bridges may be safely welded. Several are in fact now in service. Systematic experiments comparing welded and riveted joints of all kinds are being carried out. The X-ray testing equipment used in the bridge department's examination car has been enlarged, and is being used not only to examine welds but to ascertain the arrangement of the steelwork inside ferro-concrete structures of which the drawings have been lost.

\* \* \*

### Excessive Wheel-Loading

Some remarkable figures of the maximum stresses to which rails may be subjected were given in a lecture by Professor H. F. Moore, of the University of Illinois, to the Annual Convention of the American Railway Engineering Association at Chicago in March. Observations had been taken of the passage of some 50,000 wheels over a test length of track, with the object of ascertaining the effect of incorrect locomotive balancing, flats on wheels, and other abnormal wheel conditions. It was found that the actual loading effect on the rail is not infrequently from two to three times as great as the nominal static load. One record was obtained of a wheel-loading of 26.8 tons, and several of 18 tons, whereas nominally the maximum static wheel-load permitted in the United States, in the case of locomotive driving-wheels, is about 15 tons, and the latter compares with 10 to 11½ tons only in Great Britain. In the tests referred to, roughly 250 wheels gave a loading figure of over 16½ tons, which has been proved to be sufficient to develop fissures in the rail-head. These and other tests have confirmed that transverse fissure failures are produced only when minute shatter-cracks are present initially in the rail-head; but that excessive bearing stresses on the outer surface of the rail-head can produce external cracks which may ultimately result in failure also. The stresses necessary to produce failure in the latter case, however, are considerably greater than those which will expand a shatter-crack to a transverse fissure failure.



### British Group Railways in 1933

**T**WELVE months ago, when commenting editorially in these columns upon the financial and operating results of the group railways in 1932, we ventured to suggest that the outlook was not so black as might appear from a cursory glance at the returns. For the first time since road competition became a serious factor, the year 1932, in our opinion, provided definite indications that this particular menace to railway solvency had been checked; with the records for another year now available the position can be gauged with more certainty, and it does seem that the indications of 1932 are confirmed by the subsequent year's working. The transport industry generally appears to have emerged to some extent from the stormy seas of violent competition, with its attendant bitterness and the inevitable suffering and all-round loss which arise from unnecessary duplication of facilities, and to have entered into the calmer waters of stability where the road and rail sections of the industry can develop upon rational lines, each in its respective sphere of maximum usefulness to the community. From the annual tables compiled from the returns and statistics for 1933, which we publish again in the form of a supplement to this issue of *THE RAILWAY GAZETTE*, it will be noted that the aggregate net receipts of the four group railways total £26,358,000, an increase of approximately £2,474,000 on the corresponding figure for 1932. This increase is almost entirely due to further reductions in expenditure, gross receipts being practically the same as in the previous year. An examination of the weekly traffic returns shows that the year under review witnessed the bottom of the trough of the trade depression, and, in fact, that for the first seven months earnings declined by nearly 4 per cent. compared with the corresponding period of the previous year, the deficit being made good during the last five months.

The particulars given in respect of the various sources of income are interesting. As regards passenger traffic, there is an increase of about 25 millions in the total number of passengers carried, a large proportion of which is probably due to the introduction of cheap summer fares, which are to remain in force throughout the present year. The decline in first class travel by both ordinary passengers and season ticket holders has not been arrested, but more workmen's tickets have been issued, which may be taken to reflect a revival in trade. The Southern Company's progressive policy of extending electrified working to Brighton and Worthing seems to have met with a well merited reward, and in fact this company actually carried 8 per cent. more passengers than it did in 1923, although the aggregate for the four group railways in 1933 shows that the total number of passengers carried is 18 per cent. below the corresponding figure of ten years ago. Goods traffic shows an increase of over 9 per cent. in revenue from minerals and merchandise, chiefly iron, steel and allied materials, but the revenue from coal is below even the poor figure of the previous year. Gross revenue from steam boats is slightly below the 1932 figure in all cases except the Southern, which shows an increase of about £24,500, approximately 2½ per cent. Road Transport has improved all round, both in gross receipts and net revenue. As regards Docks, Harbours and Wharves the position is somewhat better, except in the case of the Great Western, which has no doubt suffered in this respect from depression in the export coal trade. On the expenditure side the returns appear to be most satisfactory; having regard to the substantial economies which have been made in previous years, further considerable reductions in expenditure were hardly to be expected and they are therefore the more welcome. Way and works maintenance—Abstract A—is slightly less in most cases, but the position is com-

plicated by the wide variation in transfers to or from the suspense accounts. However, with the exception of the Great Western, there is a definite drop in the expenditure per train mile. The maintenance of rolling stock has cost less on all groups in spite of increased train mileage, and the same remark applies to locomotive running expenses except on the Southern where, although slightly higher in aggregate, expenditure has nevertheless fallen from 15·65 to 14·93 pence per train mile, a very satisfactory state of affairs. Traffic expenses considered on a train-mile basis show a general improvement; the remaining items of expenditure call for no special comment.

As regards the future, the 1934 traffic returns for the first 15 weeks show an aggregate increase of £2,236,000 compared with last year; these figures combined with the generally improving trade outlook point to an increase in net revenue. It seems reasonable to expect a somewhat better coal traffic, while the revival in the construction of new and the maintenance of existing roads should do something to restore the traffic in road-making material. National housing and slum clearance schemes may lead to a further improvement in the carriage and building materials. On the other hand it is easy to form too optimistic an estimate of the probable railway position by the end of the current year. It must be remembered that the reduced summer fares will be in operation throughout 1934; moreover last year passenger traffic was favoured by an exceptionally fine summer such as encourages holiday travel. The steady decline in revenue expenditure cannot continue indefinitely; indeed an increase in outgoings is to be looked for. Although the railways have undoubtedly maintained their property in first class condition, in times of deep depression it would be natural to defer work which can be postponed without detriment to the undertaking. Lastly we would remind our readers that a considerable part of the decrease in expenditure is accounted for by the reductions in rates of pay which the staff of all grades agreed to accept during the period of depression. There is still a great amount of leeway to be made up before railway prosperity reaches the 1929 standard, or before dividends are paid on the whole of the capital invested in the railway industry. The outlook is certainly more hopeful than it has been for a considerable time, particularly so because the railways will be meeting any returns of prosperity in a more efficient state than ever before.

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### The New Italian Direttissima

**O**NE of the most remarkable of recent railway undertakings was formally opened last Sunday by the King of Italy. The new direct line through the Apennines between Florence and Bologna of which some notes will be found on another page, is a work that has taken years to complete, for it not only gives a straight and comparatively easily graded route through a mountainous district, but it includes the longest double-line tunnel in the world, the great Apennine tunnel 11½ miles long with a four-line overtaking station half way through it. Actually the new tunnel ranks as the second longest in the world, being exceeded in length only by the Simplon, which has two single-line tunnels of 12 miles, 668 yards. The distance between Bologna and Florence by the new direct line is 60½ miles, against the 82 miles of the existing steeply graded and tortuous route via Pracchia which rises to a summit of 2,034 ft. compared with the 1,070 ft. summit of the new line. Both lines are electrified, but whereas the old line is on the three-phase, 3,700 volt system hitherto standard in Italy, the new line uses 3,000 volts direct current, which has been adopted for future main line elec-



trification in Italy, and on which system the Naples-Rome-Florence section is to be electrified.

The total cost of the *Direttissima* is estimated at about £12,000,000 (gold) but, with the continually growing traffic the old single line was taxed to its utmost capacity and new facilities were necessary. The bold project of a direct line cutting right through the mountains was decided on partly because of the much greater capacity such a line would have, but also because such a comparatively easily graded high-speed line will be much more economical to work. It is estimated that on a current consumption basis the same traffic could be worked by the new line at 50 per cent. of the cost which would be required to work it by the old line. By the latter, goods trains are limited to 480 tons, and by the new the limit is raised to 1,000 tons. The journey time of the fastest passenger expresses will be reduced from 2 hours 26 minutes to 66 minutes (ultimately to 59 minutes), and we have previously referred to the far-reaching effect this will have in accelerating the north-south train services.

The Florence-Bologna *Direttissima* is the second such undertaking to be brought to fruition in Italy. The first was the Rome-Naples direct line opened some seven years ago by which the journey time between the capital and Naples was reduced from 4½ hours to 2½ hours. In length the Rome-Naples line, 130½ miles, is greater than the line between Florence and Bologna, but, despite its direct route, which involved the construction of several long tunnels and other important works, its engineering magnitude was much less. The new line is one of the greatest engineering works of any sort undertaken during the present century. It has been conceived and carried out on the grand scale and is a fitting monument to the Italian engineers who have earned for themselves by this and countless other achievements a reputation second to none in the world.

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### The New Station at Florence

AS the culmination of the re-arrangement of the railway system at Florence, a work which is intimately connected with the *Direttissima* between that city and Bologna referred to above, a new central station is to be built. When first it was decided to undertake the work, the Civil Engineering Department of the Italian State Railways prepared a design which was more or less in keeping with the best examples of Florentine architecture. But this civility on the part of the Engineering Department towards the glories of the past brought down upon its head the wrath of architects and artists throughout Italy, who said that the design lacked character and individuality. Certainly it is not easy for modern feet to walk in the shoes of Brunelleschi and Alberti, nor can the massive dignity of the Palazzo Riccardi readily be adapted to the requirements of a railway station, especially in these days of severe simplicity and unornamented expression of function. Bowing before the storm of protest and derision the Minister of Communications announced that an architectural competition for the proposed station would be held, and he invited Italian architects to submit designs to be judged by an influential committee of artists and architects. Several hundred entries were received, and we have been privileged to inspect photographs of the five sets of designs placed first to fifth, and of these photographs we publish a selection elsewhere in this issue. The design which gained first place was submitted by a group of six Tuscan architects. Consideration of the five plans suggests that definite conditions were laid down regarding the disposition of particular parts of the station, for in all the designs there is a resemblance in lay-out too

close to be fortuitous. All show a directness and apparent simplicity in planning for which the authors are heartily to be commended, and it is evident that much thought has been expended upon the requirements of railway travellers.

It is in the elevations and general architectural treatment that the designers have given full play to their imaginations, and all are typical examples of modernism. Here indeed is a break with the past; here indeed has Florentine Renaissance been swept off the face of the drawing board, and it is strange that where "individuality" and "character" have been given such free vent so much general similarity in the designs should be apparent; the shackles of the "modern" cult appear to be as cramping as those of less enlightened days. It is a commendable tenet of the modern school that a building should look like what it is, instantly expressing its function to the most casual glance, and if our readers will study the perspective drawing of the design awarded first place we do not doubt that they will at once say "that is a railway station." But then our readers are intelligent persons; the less enlightened might perchance think that they were gazing upon a crude representation of the Niagara Falls. For the most convincing expression of purpose we should award the prize to Design No. 3 which, as it most certainly does not suggest anything else, may therefore be said to be least unlike a railway station.

In all the designs the scale is tremendous, bare expanses of material rear themselves upward in masses which, in actuality, would be terrifying; to enter the prize-winning portals for the sake of starting upon a joyful holiday trip would seem little short of desecration; nothing less than a journey for the contemporaneous interment of all one's family and relations could sanction intrusion. True, when once inside, the traveller would find the great hall wonderfully well lighted, since the roof is all glass, which in a Florentine summer would probably render the place insufferably hot; in the Palazzo Riccardi it was not a purposeless whim that led Brunelleschi and Michelozzo to keep their fenestration in small units and to envelop the upper storey in the generous shade of a widely overhanging cornice. But our Italian friends must forgive these comments upon the station which is to be built; we in England are passing through a similar stage in architectural development, and we echo Sir Giles Gilbert Scott's hope that evolution and not revolution may be the goal of striving. And if Signor Ugo Ojetti—one of Italy's foremost art critics—considers that this prize-winning station would not be in harmony with the general architecture of Florence, we shall not presume to disagree with him. And after all, one can arrange to arrive at Florence by night.

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### New L.M.S. Express Engines

THE new three-cylinder 4-6-0 express locomotive just completed at Crewe is the first of 113 being built to the designs of Mr. W. A. Stanier, Chief Mechanical Engineer of the L.M.S.R. The engines of this new series resemble in some respects those of the existing 5XP class, although differing therefrom in certain important respects, the most noteworthy being the substitution of a tapered boiler barrel equipped with Mr. Stanier's moderate form of superheater as applied by him already to other locomotives of his introduction on the L.M.S.R. We use the term "moderate" as distinct from "modified" in this connection as signifying the more clearly what is meant, namely, that, as things go with locomotives of this classification, the superheater appears to be on the small side and consequently may be expected to produce only moderate temperatures. Mr. Stanier's continued adherence to this plan can suggest only one

thing, namely that his experience has proved to his satisfaction that the proportions adopted have, in spite of their apparent unorthodoxy, demonstrated their efficiency in service, which, of course, provides a sufficient justification.

We were enabled by the courtesy of Mr. Stanier to inspect the first Crewe-built engine, No. 5552, at Crewe works on the day it was turned out for its steam trials when opportunities were afforded for making a close inspection. We were much impressed by the well laid out features of design exhibited and particularly by the cab arrangements. On the footplate there is a sense of spaciousness and convenience and the lookout is facilitated by the ample window spacing in the front and at the sides, adjustable glass shields being fitted to the side windows so that when

the enginemmen are looking out through these windows in the forward direction protection is afforded. Great care and thought have obviously been expended in perfecting details with a view to producing a locomotive that shall not only be economical in running and maintenance costs, but shall also give a high overall efficiency. The comments we made upon Mr. Stanier's recent 2-6-4 tank engines, described in our issue of March 30, hold good in general for these new 4-6-0 express locomotives, which incorporate many of the standard components used on the former. Regarded as a whole the engine is a very good example of modern British locomotive design, and our inspection left us with a very clear impression of this fact. The new locomotives are illustrated and described on page 728 of this issue.

## LETTERS TO THE EDITOR

(The Editor is not responsible for the opinions of Correspondents)

### Recovering Lost Time

28, Ashburn Place,  
S.W.1.

April 23

TO THE EDITOR OF THE RAILWAY GAZETTE

SIR,—I am pleased to see the way you insist on the importance of making up lost time in THE RAILWAY GAZETTE. Three weeks ago I had a most satisfactory run on the G.W.R., 12 noon Paddington to Exeter. We were slacked five times, losing fully 10 minutes, but arrived at Exeter punctually. Eighty m.p.h. was reached in four places and the top speed was 88 m.p.h. The engine was a "King" with 325 tons behind the tender. The service slacks on the Westbury and Frome avoiding lines lost another 4 minutes, so the run was equal to an unhindered run in 156 minutes, say, 67 m.p.h. throughout.

One of the train men told me that the drivers had now been told that if they did not make up lost time they would have to make way for others who would. It sounds almost too good to be true!

Yours faithfully,  
MONKSWELL

### Safe Speeds and Axle-loads on Colonial Narrow Gauge Railways

Abbey House, London, S.W.1.  
April 25

TO THE EDITOR OF THE RAILWAY GAZETTE

SIR,—Mr. Bulkeley's letter in your issue of April 13 is a timely contribution to a neglected subject, and his observations raise the whole question of the capacity of narrow gauges. Briefly, this involved subject may be viewed from two standpoints. First, are existing maxima and limiting factors being used to their full extent? Secondly, can such maxima and limiting factors be raised?

The fact that the whole timetable of a railway is built up on the maximum speeds permitted by the Chief Civil Engineer immediately brings home the importance of that figure which, if 5 m.p.h. too low, may be increasing expenditure on the one hand and reducing revenue on the other—a double attack on the operating ratio! Conversely, too high a speed may result in increased maintenance out of proportion to the accruing advantages, while one serious accident might annihilate all advantages and savings.

As Mr. Bulkeley implies, the Chief Civil Engineer is as much entitled to restful sleep as anyone and his excessive caution is not to be wondered at when the average speed in certain timetables sometimes works out at the maximum speed, as has come under the writer's notice! Furthermore maximum permissible speeds notably on curves, are frequently exceeded particularly during the night, so that speed restrictions are in many cases less feared than was the old road restriction of 20 m.p.h. in this country. Again,

as the capacity of a driver to estimate his speed varies greatly and few engines are provided with a speed indicator, we have another argument in support of the caution displayed by Civil Engineers. A great improvement would therefore seem possible by more cohesion between Locomotive, Operating and Civil Engineering Departments.

As regards existing speeds, while the rule of thumb method that the maximum velocity should be equal to the gauge in inches may be near the mark for existing practice on certain Colonial railways, it is definitely a long way out for many narrow gauge railways; and, that the safe speed should be proportional to the square root of the gauge can be of value only when railways of all gauges are built to the same standards. Mr. Bulkeley cites the South African Railways and it might be of interest to give the present maximum speeds allowed on the straight and curves of various radii for rails of different weights, this railway being not only the largest narrow gauge in the world, but also one of the most highly developed:—

Radius of curve in ft.	*96 lb. and 80 lb. track	60 lb. track	60 lb. and 45 lb. track (7 ft. by 10 in. by 5 in. sleepers)	45 lb. track (6 ft. 6 in. by 9 in. by 4 in. sleepers)	35 lb. track (6 ft. 6 in. by 9 in. by 4 in. sleepers)
	m.p.h.	m.p.h.	m.p.h.	m.p.h.	m.p.h.
300	20	18	14	12	10
330	23	20	16	13	11
396	25	22	17	15	12
462	27	24	18	16	13
528	28	25	20	17	14
594	30	27	21	18	15
660	32	29	22	19	16
726	33	30	23	20	17
792	35	31	24	21	18
858	36	32	25	22	19
924	37	34	26	22	18
990	39	35	27	23	19
1,056	40	36	28	24	20
1,122	41	37	29	25	21
1,188	42	38	30	25	21
1,254	43	39	30	26	22
1,320	45	40	31	27	22
1,386	46	41	32	27	23
1,452	47	42	33	28	23
1,518	48	43	33	29	24
1,584	49	44	34	29	24
1,650	50	45	35	30	25
On straights and on curves of 2,640 ft. and over	55	45	35	30	25

\* It is possible that higher speeds will be permitted when whole sections are relaid with heavier track.

My first point is therefore—to what extent are these speeds being utilised? Examination of the timetable can convey little regarding performance, unless one knows the characteristics of the line. But even with this knowledge, average

speeds cannot tell the whole story as they may be obtained by high speed down the bank or across the flats and poor performance up grade. For instance, one might cite the  $4\frac{1}{2}$  m.p.h. average speed of the Swallow express, the fastest train on the Japanese 3 ft. 6 in. gauge railways, which reaches a maximum of 60 m.p.h. with a 320-ton train and a locomotive having 5 ft. 9 in. drivers; but it is doubtful whether the speeds as a whole are as near the safe maximum as the Union Express on the South African Railways, which runs the thousand miles from Capetown to Johannesburg at an average of 37 m.p.h. despite a total rise of 18,000 ft. with a 400-ton train and a 5 ft. 0 in. wheeled engine weighing 156 tons and having a tractive effort of 33,500 lb. at 75 per cent. The average speed of section timings is also well above 40 m.p.h. for long distances.

In the case of the Union express one might say that the speeds on curves down grade are timed to the absolute maximum compatible with safety and reasonable maintenance, while the speed on the sharper curves up grade, due to powerful engines, is approaching the maximum. On one section of the Natal main line, which is infested with 300 ft. curves and 1 in 30 gradients, the speed up grade on suburban services now equals the speed down grade, radius indicator boards being placed before the entrance of the curves in both directions. As a matter of fact, the radius of curves on the main line throughout South Africa where there is fast running have been marked for the last 20 years. From the writer's experience curve radius boards are essential and are the only method by which the lowest possible point to point timings can be obtained on curvy sections. Drivers soon get accustomed to their use, and, with a speed indicator, curves can be taken at the highest permitted speed. Present maximum speeds on the South African Railways are sometimes exceeded, but by good training and supervision seldom abused. The following log of an ordinary train hauled by a 5 ft. 1 in. wheeled engine is of interest and not untypical of performance on the more level portions; a Beyer-Garratt locomotive has also run 61 m.p.h. with perfect stability:—

m. ch.	Timing points	Av. Sp. m.p.h.	Max. Sp. m.p.h.
0 0	Bellville ... .. dep.	—	—
1 11	Fairfield Box ... ..	31.0	49.0
2 38	Parow ... ..	59.4	—
3 40	Elsie's River ... ..	62.5	62.5
4 61	Goodwood ... ..	60.6	61.0
5 54	Woltemade 3 ... ..	59.8	—
7 12	Woltemade 1 ... ..	58.3	59.0
8 24	Maitland ... ..	54.5	56.0
8 66	Koeberg ... ..	57.3	61.0
9 50	Salt River ... .. arr.	37.9	—
(Cape Town)			

Average speed for 9 m. 50 ch. = 51.2 m.p.h.

To arrive at standard speeds for different railways, however, as suggested by Mr. Bulkeley, seems a difficult matter, as the characteristics of permanent way and rolling stock vary so greatly. For instance, citing South African conditions again, 300 ft. curves may be sometimes tackled at speeds up to 30 m.p.h., but then all such curves are check-railed and have  $4\frac{1}{2}$  in. cant. Nevertheless, the high rail may have to be renewed in six months having a  $\frac{3}{4}$  in. side cut, this being caused not so much by the locomotive as by the trainloads of 1,300 tons, composed of 70 ton wagons. Again, on new lines checkrailing is now carried out up to 700 ft. radius, while curves are transitional, thus reducing the first shock to locomotive and vehicles, reducing wear and tear and greatly improving the riding of coaches. The high speed run on curves on these railways is undoubtedly due to the standard of maintenance, particularly as regards alignment, as, of course, irregularities in a curve are serious and, at intervals synchronising with the recovery of the locomotive, may even be disastrous. On tangent track one might imagine that similar speeds to those on the standard gauge could be run but, while limitations of the roadbed to withstand vibration and the presence of slacks reduce this, there is also the fact that more often than not the locomotive is of unsuitable type. This is due to heavily graded sections being mingled with the level stretches, the engine having to be designed for the former conditions. Therefore, with its small wheel which cannot be balanced properly, the speed on the level is limited and maintenance all round increased. On some

railways this has been overcome by using six-coupled fast running articulated locomotives having the haulage power of ten-coupled engines but with a suitable wheel for the level and the running characteristics of a six-coupled. Where whole sections between depots are similar to the main lines of this country, speeds up to 50 m.p.h. are common on such metre gauge railways as the Argentine State, Antofagasta (Chile) and Bolivia, and Federated Malay States, etc. It would therefore seem that there is scope for improvement on many narrow gauge railways, as few approach the above mentioned performance, such improvements lying mainly in the direction of more suitable locomotives and reduced stopping times for traffic and locomotive requirements; also the fitting of curve radius boards and speed indicators on engines. With electric headlights plain white boards with black figures are easily picked up at night. Scintillating reflex lenses as suggested by Mr. Bulkeley would further improve matters.

As regards possible increase in existing maxima and limiting factors, the maintenance of the track would seem to be at the root of the matter. Curves could be transitioned and check-railed, but the economical limit should be readily determinable when curves are being kicked out and other symptoms associated with excessive maintenance become apparent. Such points, however, as climatic conditions (rainfall and temperature extremes), the class of labour and the extent to which rolling stock has been developed in relation to the gauge have a direct bearing on permissible or standard speeds. Relaying with heavier track is another way but, considering that many railways use the maximum axleload only for locomotives, rolling stock being sometimes several tons less, it seems a waste of capital to relay just for the engine, and further, on existing axleloads, increased tractive effort can be obtained by resort to more coupled wheels or better still, articulation. Garratt engines, due to the disposition of their centre of gravity and the boiler coming to the inside of the curve are known to negotiate curves at higher speeds than the ordinary engine with less effect on the track; at the same time speed cannot, of course, be increased to the point of causing undue oscillation of coaches and discomfort to passengers.

In pursuance of Mr. Bulkeley's suggestion, would it not be more helpful, perhaps, considering the diversity of railway conditions, if selected officers concerned, (practical locomotive, civil and operating men), together with an official or officials of the Crown Agents for the Colonies, were afforded an opportunity of visiting such railways as those of South Africa, Japan and Java, where either the present highest speeds are being run or the loading gauge developed the most?

Yours faithfully,

W. CYRIL WILLIAMS

### The Signal Engineer's Department

40, Broadway, Westminster, S.W.1.

April 24

TO THE EDITOR OF THE RAILWAY GAZETTE

SIR,—With reference to your correspondent's letter dated April 10, addressed Broadway, Westminster, S.W.1, and signed "Signalling Manufacturer," appearing on page 662 in your issue of April 20, as the registered office of this company is 40, Broadway, Westminster, S.W.1, some of your readers may erroneously conclude that the letter above referred to emanated from this company or one of its staff, when such is definitely not the case.

We much deprecate any suggestion which undervalues the excellent work of the railway engineers, as it is mainly the result of the application of their knowledge, founded on practical experience, which is the main basis of signalling developments, and without which, in many cases, the manufacturer would undoubtedly be very much handicapped.

We would ask you to be good enough to insert this disclaimer in your next issue.

Yours faithfully,

For and on behalf of  
The Railway Signal Co. Ltd.,

W. S. ROBERTS,  
Managing Director



## THE SCRAP HEAP

A local newspaper, published not 100 miles from Crewe, in commenting upon Mr. Stanier's new passenger locomotives now building in the works there, unburdened itself of the following:

"Intended for passenger work they will be on imposing lines. A novel feature will be the nickel-plated boilers, which are expected to wear better and will certainly produce a brighter appearance than the more usual variety."

Even so, the Americans can go one better than the Old Country for have they not in the United States a complete railway called the Nickel Plate Road?

### BIRDIES WILL SING—EVEN ON A RAILWAY

Railways do not inspire in birds the fear which one might expect; they seem to insist upon building their nests and singing away under what are apparently most unattractive and terrifying conditions. One extraordinary record tells of two wagtails on the old L.S.W.R. which built a nest and reared four young birds in a niche in the framework of a railway carriage which was in daily use. The carriage travelled between two stations, making four journeys a day and covering about forty miles in all. The stationmaster at one end often used to see the cock bird waiting with food for the return of his gadabout family. Thrushes have been known to nest on goods trucks standing in sidings, but they usually desert if the trucks are moved. On one occasion, however, a pair of thrushes was known to rear a brood in a nest built under the body of a truck which was in regular use, while the buffer of a passenger coach in daily service was the site chosen for a nest by a blue titmouse. Robins are notoriously confident birds, but the pair which elected to nest under a railway line showed real valour. A still more wonderful case is that of a skylark which built its nest

under the permanent way between Newmarket and Dullingham. Thirty trains thundered immediately over this nest every day. Birds are commonly said to have no sense of smell, but it was the sense of hearing which must surely have been deficient in the pair of house sparrows which nested inside a station gong, which was sounded a hundred times in every twelve hours!

### WHIST TRAINS ON THE L.M.S.

"It is significant to read that the L.M.S. propose to conduct Whist Trains, excursions in which the scenery will be a subordinate attraction to the Whist Tournament. The players—640 to each train—will play each other while the train winds in and out of the Lake District, and the winners will receive seven guineas' worth of free travel in which to exploit their new-found skill with the cards. The old claim for travel as the best education will be strongly reinforced. The great Duke of Wellington opposed railways on the ground that 'they would put a premium on the lower classes wandering aimlessly about the country.' Perhaps the memory of the taunt still lingers, and accounts for the resolve of the railways to add organised card-playing, so that journeys will be allowed to count on educational grounds, as attendance at night-schools does, for righteousness in the eyes of employers. Now that they have taken the first great step to show that the B.B.C. is not to have a monopoly of improving the population, the railways may be expected to go much further. To the stenographers they already provide there will surely be added instructors in useful languages—young Frenchmen, Germans and Spaniards, who will eat in the refreshment rooms and sleep at terminus hotels, in return for giving conversation lessons, in clearly labelled carriages, to those passengers who do

not wish to let two or three hours slip from them in the perusal of detective fiction, or in the yet more commonplace and undistinguished activity of sleep."—From a leader in "The Times."

What British resorts have to contend with!

# forget. D.O.R.A.

### IN THE LAND OF SUN & FREEDOM

No closing hours. No  
Grundyish restrictions.  
No need to know French.  
No greater cost.



When you holiday in Normandy or Brittany, D.O.R.A. stays behind. You are free—to drink when you're thirsty—to enjoy the full pleasures of bathing and dancing—to gamble a shilling or two at the tables if you wish. A holiday in Normandy or Brittany does you twice as much good as a holiday at home, although it costs no more. Post this coupon for further particulars or enquire at any tourist agency.

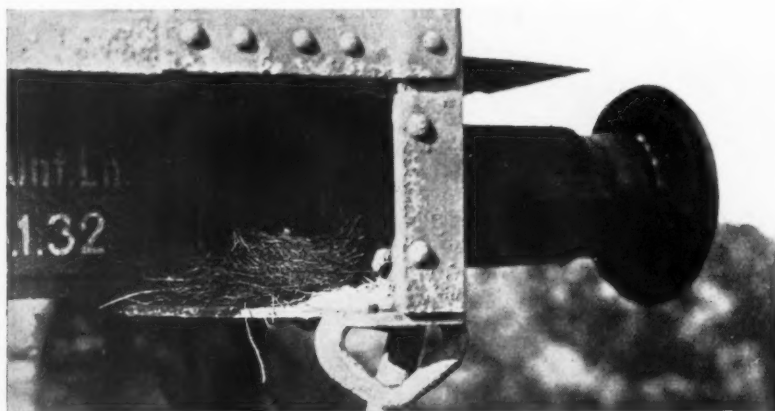
## COME TO NORMANDY & BRITTANY

From an advertisement of the French State Railways in English newspapers

A Manchester journal in commenting upon an exhibition about to be held there, waxed eulogistic on the fact that the *Royal Scot* and a train of modern railway coaches would be on view outside the building.

"The famous engine," it said, "will be pulling the most up-to-date train in the world, a composite train, made up of compartments from the South-Eastern Railway, the North-Eastern Railway, the L.M.S. and the G.W.R."

Can it be that the Southern and London & North Eastern were not invited to send "compartments" for inclusion in the train, or did they say that so far as they were concerned it must be complete coaches or nothing?



The travelling home of a thrush on the underframe of a German State Railway wagon

## OVERSEAS RAILWAY AFFAIRS

(From our special correspondents)

*Separate Transport Member of Council suggested in India—The Egyptian railway budget—Long-burning gas signal lamps in Germany—Italian colonial transport policy—Modern publicity, express freight and road services in Japan—More Paris Metro extensions—Railway extensions in Chekiang, Kiangsi and Szechuen foreshadowed*

### INDIA

#### Economic Planning

The European group in the Legislative Assembly recently initiated a full-day debate on the necessity for economic planning by means of (a) redistribution of portfolios, (b) consideration and consolidation of tariffs, (c) formation of an economic advisory council and (d) revision of trade agreements. Mr. F. E. James, who opened the discussion, was particularly anxious to see that matters relating to transport, whether by rail, road, air or water, were placed in charge of a separate member in the Executive Council of the Viceroy. The grouping of railways and commerce in a single portfolio was, he considered, unsatisfactory, as also the combination of labour and industry. Mr. James suggested that with the separation of communications, commerce should be associated with industries and agriculture with labour. During the debate the complicated system of railway freights was brought up and Sir Joseph Bhore stated that the Government were examining the question of revising the classification of goods.

#### Indian and Other Goods Rates Compared

It is a common complaint in India that the railway rates are much too high and retard industrial progress. An American publication, however, gives the following figures of average receipts per ton-mile on railways in various countries: Japan 0.63 cent; Poland 0.80 cent; India 0.83 cent; Canada 0.94 cent; U.S.A. 1.052 cents; South Africa 1.35 cents; Mexico 2.20 cents; China 3.08 cents; South Australia 2.33 cents; Argentine 2.41 cents. The official figure of receipts per ton-mile on Indian railways for the year 1931-32, (the American figures were published in December, 1932) is 6.05 pies and works out somewhat higher than 0.83 per cent. at the normal rate of exchange. Nevertheless, it does not appear as if the charge of a high level of railway rates can be seriously sustained in India.

The long-standing practice for one of the Agents of the three large railways serving Calcutta to obtain a seat on the Committee of the Bengal Chamber of

Commerce was criticised in the Assembly on the ground that the Chambers of Commerce were interested not only in commercial but also in political matters which were taboo to Government officials under the conduct rules. The Financial Commissioner of Railways pointed out the Government considered it desirable in the interests of railways and trade generally that Agents of railways should be members of important commercial bodies.

#### Reconstruction of the Dufferin Bridge, Benares

There now seems every prospect that the Dufferin bridge across the Ganges at Benares, on the old O. & R. Railway—which in 1925 became a portion of the East Indian—will be rebuilt shortly. This bridge was first opened for traffic in October, 1887, and at present has a single railway track and a roadway at each side. It has a total length of 3,507 ft. and consists of seven spans of 331 ft. clear and nine spans of 103 ft. clear. Reconstruction has been under consideration for some time, as apart from corrosion in some of the steelwork, a double-track bridge has become essential to cope with the traffic of this trunk route. The river piers are carried down to rock with one exception. This pier rests on clay. The question as to whether additional loading could be carried by the clay has been much debated, and tests have been made at the site to settle the matter. It would seem, however, that the authorities are now sufficiently satisfied with the test results to embark upon the reconstruction of the bridge.

### EGYPT

#### State Railways Budget

The revised capital budget proposals of the State Railways for 1934-35 total £E.480,323 as compared with £E.188,000 in 1933-34, omitting an expenditure of £E.2,000 on salaries and allowances of New Works staff in each year. The heaviest items in the new budget are £E.100,000 for the purchase of 25 railcars (out of a total estimated cost of £E.166,000); Tanta remodelling £E.40,000 (out of a total of £E.132,000 estimated); £E.30,000 for 30 motor buses (the whole cost);

£E.19,000 for the Cairo-Suez direct line (out of £E.188,300); £E.19,000 for goods yards at Alexandria (out of £E.14,049); and £E.10,000 for the electrification of the Helwan line (the total cost being estimated at £E.150,000).

No new locomotives are to be purchased, but three Drewry cars at £E.540 each are allowed for. Additional items demanded for inclusion in the 1934-35 budget are £E.16,000 for the Gizret Seoud extension and £E.25,000 for Sidi-Gabir remodelling.

#### This and Last Year's Receipts

From May 1 last up to March 10 this year, the receipts of the Egyptian State Railways amounted to £E.4,272,000 as against £E.4,007,000 for the corresponding period of the previous year, an increase of £E.265,000. The number of passengers carried during this period was 29,425,000 as against 27,653,000 for the same period of the preceding year, and passenger receipts were £E.1,757,000 as against £E.1,774,000, a decrease of £E.17,000. Goods receipts were £E.2,428,000 as against £E.2,144,000 for the corresponding period of the preceding year, or an increase of £E.284,000. The tonnage carried for the period under review was 6,080,000 tons as against 5,583,000 tons for the same period of the previous year, or an increase of 542,000 tons.

### NEW ZEALAND

#### Organised Parties

Organised parties from overseas are becoming a feature of passenger travel in New Zealand. The world cruise liners now definitely include this Dominion in their itineraries and very complete arrangements are made by the railways here to enable the large groups of passengers who desire to make trips through the country to do so in the most comfortable way, so that in the brief time at their disposal they may see as much as possible of the finest features of the country. Typical of this was the visit last month of the Cunard liner *Franconia*. A party of 110 left Auckland by special train within an hour of the vessel's arrival for Rotorua, the headquarters of the thermal region. This party was specially conducted by an officer of the railways, acting in conjunction with the cruise director, through the principal North Island resorts and, after a few days, rejoined their vessel (which had meanwhile skirted the coast) at Wellington.

In cases such as this the Railway Department makes complete arrangements for the passengers and for their luggage, which is delivered to their bedrooms in the various hotels *en route* almost simultaneously with their own arrival, the whole of the checking being carried through under the control of a special baggage officer detailed for the work. Visitors have remarked that

the convenience of the system adopted relieves them of every possible anxiety of travel. A similar tour throughout the Dominion by a large party of Australian farmers, over for a combined educational and pleasure trip, was completed a few days ago.

## GERMANY

### Bridge Reconstruction in Berlin

The work of reconstructing the large number of bridges on the Berlin City line, or Stadtbahn, referred to in our issue for August 25 last, presents considerable difficulty because of the heavy railway and road traffic, which is continuous except for a very few hours during the night, and the awkward position of many of the bridges with respect to neighbouring buildings. Fortunately the traffic on two of the four lines of the Stadtbahn has a few quiet intervals during the day-time, which allows of some preparatory operations being carried out. The bridges are being completely renewed, under both local and main line tracks. Some idea of the magnitude of the work done may be gathered from the fact that from 1927 to 1932, both years inclusive, 19,603 special work trains had to be run and 20,477 special notices and telegrams issued and exchanged. The appearance of the new bridges is pleasing. In many cases the streets crossed have been widened and intermediate supporting columns removed from the arches, leaving a neat single span.

### Propane Gas for Signal Lighting

For several years past the German State Railway has been paying attention to the question of improving its signal lights and, at the same time, reducing their cost. On the whole, the signal lighting on the German lines has always been good, but the lamps were, until quite recent years, attended to daily. Long burning lamps were late in making their appearance, but there are many in use now of the type developed by the Bruchsal works. About two years ago the well-known firm of Julius Pintsch brought out a method of lighting signal lamps by means of propane gas, contained in holders attached to each lantern and burned in conjunction with a mantle. Herr Buddenberg, who has charge of experimental signal work in Berlin, has written an account of the system in the *Zeitschrift für das gesamte Eisenbahn-Sicherungswesen*, from which it appears that the light given is very good and about 50 per cent. better than that obtained with the long burning oil lamps. With propane gas there is less risk of explosion than with other gases, such as acetylene, and the containers do not have to be so stout and heavy, nor is any piping on the signal post required. The new lamps are in use on five divisions of the Reichsbahn. They are perfectly stormproof and burn for a fortnight without attention, after

which the containers are changed. A longer time is of no real advantage, as the signal glasses must be cleaned at intervals in any case, and the gas containers can be changed at the same time. It is too early to give definite figures of cost, as the demand for the gas is as yet insufficient to enable the price to be much reduced, but burning expenses would coincide with those of oil lamps if about 8,000 lanterns were fitted. The results so far obtained, however, encourage Herr Buddenberg to believe that propane gas has a promising future.

## ITALY

### Substitution of Roads for Railway Extension in Eritrea

The Minister for the Colonies has decided to stop work on the railway extension from Biscia to Tenessei in Eritrea referred to in THE RAILWAY GAZETTE of September 15 last. At the time when the construction of this extension was sanctioned by Parliament, the Ministry was authorised to limit the construction of the line to the formation without the permanent way, and to devote the cost of the latter and of the rolling stock to turn the track into a motor road suitable for heavy traffic, utilising any surplus for the improvement of the main road, from Massaua to the capital Asmara, which now has to carry an ever increasing motor traffic. At the same time it will be possible to construct out of the capital voted by Parliament the extension of the main road from Tenessei to Um Ager on the Abyssinian frontier. The decision was partly prompted by the cotton growing crisis in Tenessei and by the fact that trade between Abyssinia and Northern Eritrea is at present practically at a standstill, so that the construction of the railway line would have shown a considerable deficit.

## JAPAN

### Publicity

Every encouragement is given to the tourist to visit Japan and to this end extensive publicity arrangements are made abroad so that the tourist may know exactly what to expect on reaching Japanese shores. The Official Guide Book to Japan is a publication carefully prepared to assist the tourist and strikingly illustrated with colour prints of the landscape and festivals in the different seasons of the year. There is nothing casual in the treatment of the tourist in Japan. Tourist traffic is cared for as an important and valuable industry under direct control of the Government Railways: there is a special Board of Tourist Industry and the very efficient Japanese Tourist Bureau with branches in the principal cities and towns of Japan, Taiwan, Chosen, Manchuria, China and the United States of America and agencies

in all the principal cities of the world. A feature which always receives approbation from the public is the thoroughness with which enquiries are treated. They receive not merely an answer to a question but a full itinerary with information concerning times of ships, trains, and connections; fares and other costs; hotels recommended with tariff charges and so forth. The hotels also co-operate in the tourist industry and set out to make their arrangements attractive.

### Operating Improvements

Among the many improvements adopted have been the commencement of express freight train services in the Tokyo and Osaka Districts; the construction of dry-ice refrigerator cars for the conveyance of foodstuffs; longer rails have been adopted to reduce car vibration; an increased number of containers have been brought into use, many of the larger stations have been improved and an express electric service has been run morning and evening on the Chuo line in Tokyo to deal with the heavy passenger traffic at those periods of the day.

### Government Railways in 1933

On the Government Railways the traffic returns for the eleven months January to November, 1933, show an increase of Yen 34,000,000 over the preceding year. The corresponding gross operating passenger and freight traffic revenues were Yen 235,000,000 and Yen 167,000,000 respectively. These figures are lower than those for 1928 and 1929, when the railways enjoyed a considerable boom, and they include a certain activity in relief work and briskness in munition manufacture which can hardly be expected to last, but on the other hand increased tourist and other traffic also accounts for the improved position. The mileage operated has been increased since 1928 by some 1,500-2,000 km. In addition, 25 new lines were constructed with the object of promoting industry in rural districts in various parts of the country during 1933. These give a total increased mileage of 314 km. under operation and 55 new stations have been opened.

### Rail, Road and Air

During 1933 the Government Railways officially inaugurated motor car services operated on eight routes. There is an excellent motor bus service to Miyanosita in the centre of the Hakone hot springs area. Regulations regarding road motor competition have been put into effect with a view to promoting the healthy development of private railways and controlling traffic in general. Through booking arrangements by airway and railway between Japan, Korea and Manchukuo are under consideration with a view to reducing the time taken by the railway and sea journey via Shimonoseki and Fusan for Korea and North Manchuria via Antung and via Shimonoseki and Dairen for South Manchuria.



## FRANCE

## Extension of Paris Metro into Suburbs

Two Metro lines, which have been extended into the suburbs of Vincennes and Issy-les-Moulineaux, were opened recently (March 24) under the auspices of the Paris Municipal Council and the General Council of the Seine Department, the two local authorities concerned. The Metro line No. 1 now runs as far as the historic Chateau de Vincennes, which houses the Museum of the 1914-18 war and is a great attraction to tourists. Incidentally, this line directly connects the two fine wooded parks, the Bois de Boulogne on the west of Paris and the Bois de Vincennes on the east.

At the inaugural ceremony, M. Boutet, Director General of Railways and Roads, represented M. Flandin, Minister of Public Works. At the terminal station the official gathering was addressed by M. Laroze, Chairman of the Board of the Paris Metropolitan Company, by M. Fiquet, President of the Municipal Council, and by M. Louis Renault, President of the General Council.

At Issy-les-Moulineaux, the new terminus of line No. 12, the opening ceremony, attended by the same officials, was held in the Town Hall. The advantages of the line in giving easier access to this growing suburb were emphasised by the speakers.

## CHINA

## Peking-Hankow Railway

The locomotive shops at Hankow, Changhsien and Chengchow, on the Peking-Hankow railway, are to be overhauled and reconditioned at a cost of Chinese dollars 2,500,000, and a further sum of C\$3,500,000 is to be spent in bridge repairs and sleeper renewals on the Chengchow-Hankow sector of the railway.

## Plans for Railway Development

To facilitate the completion of the Yushan-Pingsiang Railway across Kiangsi, as well as to improve the railway system in Chekiang and Kiangsi, a joint Chekiang-Kiangsi Railway Corporation will be established by the provincial authorities concerned. A set of regulations governing the organisation of the corporation has been formulated by the Ministry of Railways. According to these regulations, the corporation is to be capitalised at \$60,000,000. It will undertake completion of the Yushan-Pingsiang Railway on behalf of the Ministry of Railways and the Kiangsi Provincial Government, operate the Hangchow-Kiangshan Railway on behalf of the Chekiang Provincial Government, and construct or operate various branch lines in the two provinces on behalf of the Ministry of Railways and the Provin-

cial Governments of Kiangsi and Chekiang. The corporation will have a board of directors, consisting of 11 persons, including two representatives each from the Ministry of Railways, the Chekiang Provincial Government and the Kiangsi Provincial Government, and four representatives of banking interests, with the Managing-Director of the Chekiang-Kiangsi Railway Administration as *ex-officio* member.

## Railway Freight Improvements

To relieve the freight congestion along the Pengpu-Linhweikwan section (in Anhui) of the Tientsin-Pukow Railway, the Ministry of Railways has instructed the Tientsin-Pukow and Nanking-Shanghai Railway Administrations to arrange direct through traffic from Shanghai to Linhweikwan and Pengpu. The two administrations have also been instructed to increase the train service over this section to facilitate freight transportation.

## Lunghai Railway

Much valuable work on the Lunghai Railway failed in its purpose when the line fell into the hands of the militarists a few years ago, just as it was about ready for service. Parts of the line are now in urgent need of repair, but it takes time and money to recover from long periods of loss of revenue. Signs of progress are now apparent and construction work has been going on for some time, and is nearing completion on the Haichow section. It is anticipated that Haichow will in time develop into an important harbour providing a valuable gateway for the Shantung Province. The port of Lienyunkang in the vicinity is also being developed, and this will be served by the Lunghai line.

## British Participation in Szechuen Railway Construction

Szechuen, one of the most westerly provinces in China, is situated on the upper reaches of the Yangtse River and is probably the richest mineral area in the China proper. It has a valuable coalfield, which is already worked, and there are known to be large quantities of other minerals only awaiting better communications for their development. The Yangtse, as well as serving a limited belt of country, here has rapids at certain places and is navigable only by small native craft. It is therefore of special interest to learn from *The Chinese Economic Bulletin* that an agreement is understood to have been reached between the Szechuen Rehabilitation Bureau and a British firm to build a railway from Chengtu to Chungking with funds provided jointly by the two parties. The bureau will supply the land, &c., and the firm will provide the equipment. Both parties will be represented on the board of directors, and British engineers and accountants will be employed. The Provincial Govern-

ment will eventually redeem the railway and work it with Chinese staff. Chungking is on the Yangtse and is one of the great cities of China having over a million inhabitants. Chegtu is about 200 miles north-west of it and towards the mountains and the Tibetan border.

## Through Rail and Sea Traffic

An agreement for the institution of through traffic between the Kiaochow-Tsinan Railway Administration and the China Merchants Steam Navigation Company was formally signed on February 2, the terms being in accordance with regulations issued by the Ministry of Railways. The new arrangements were to be enforced on March 1.

## Huge Railway Loan Approved

The flotation of the first instalment of a \$100,000,000 Railway Reconstruction Loan, amounting to 12 millions, was approved by the Central Political Council on February 21. It is reported that the proceeds will be used for the construction of the Yushan-Pingsiang line, which is to link up with the Hangchow-Kiangshan line. It is also reported that the second and third issues, which will be floated later, will be used for the completion of the Lung-Hai and Canton-Hankow Railways.

## Shanghai-Hankow through Service

With a view to relieving traffic congestion following the partial suspension of river services owing to low water in the Yangtse, a through daily service in each direction between Hankow and Shanghai via the Nanking-Shanghai, Tientsin-Pukow, Lung-Hai and Peiping-Hankow Railways was inaugurated on February 5, following completion of arrangements made by the Ministry of Railways and the four railway administrations concerned. The journey occupies less than two days, states the *Chinese Economic Bulletin*.

## SOUTH AFRICA

## Estimates of S.A.R. Expenditure

The estimates of railway expenditure for 1934-35 tabled recently in the House of Assembly reveal a substantial increase on the estimated expenditure for the current year. The expenditure is expected to total £27,498,637, which is £1,782,356 more than the sum anticipated during 1933-34. Train and engine mileage is expected to exceed that in the previous year by 5,864,976 miles, equivalent to an increase of 11.82 per cent. In additional wages, fuel, water, &c., this increased mileage will involve an increase in running expenses of £345,908. An extra £160,993 will also be required to cover the cost of repairing locomotives and rolling stock, and more repair work will be necessitated by reason of the increased rolling stock in service on account of the improvement in traffic.

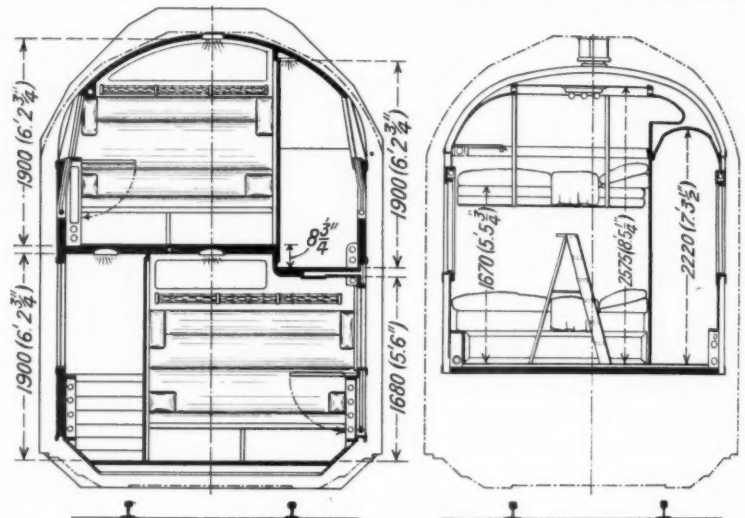
## DOUBLE DECK SWISS SLEEPING CARS

*These cars are designed to have separate upper and lower corridors on opposite sides, and accommodate eleven upper deck and eight lower deck passengers in single-berth compartments*

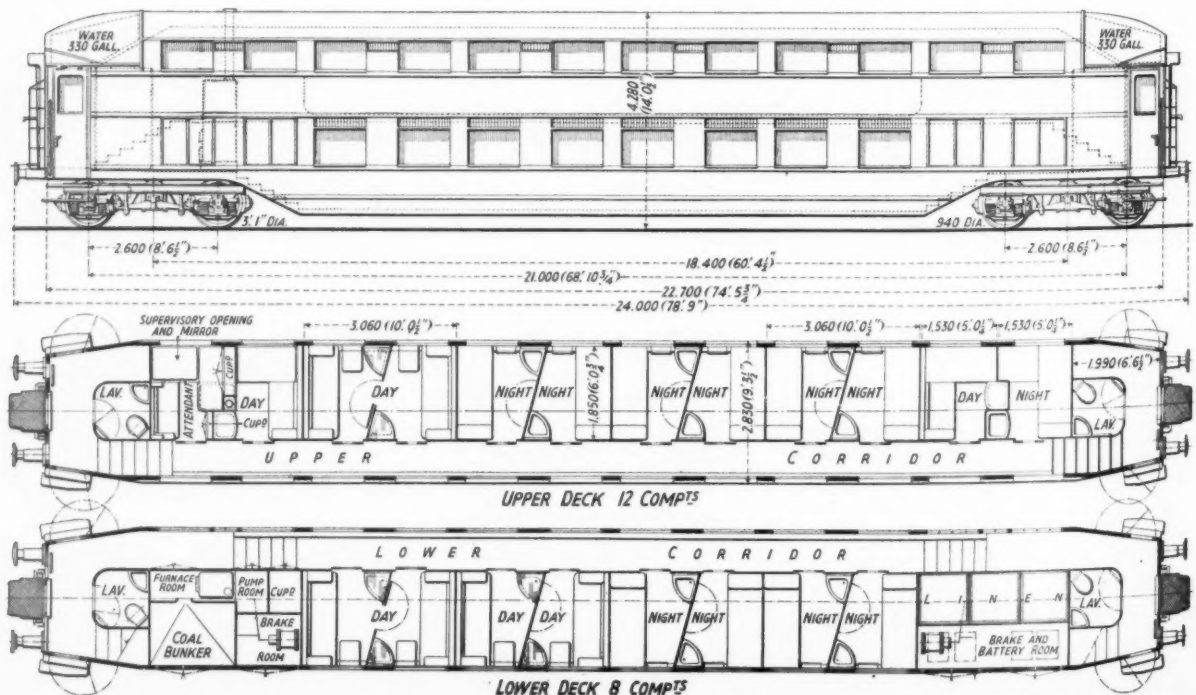
FOR some time past endeavours have been made to solve the problem of how economically to provide every passenger with his own separate sleeping compartment. The double-deck principle has previously been investigated, but one of the chief difficulties encountered hitherto in adopting it was that the stairs leading to the upper deck had of necessity to be very steep, besides obstructing the corridor and proving a latent source of danger to the upper deck passengers, who ran the risk of falling down the shaft-like aperture leading downwards. The basic mistake in all the previous plans lay in the fact that a single corridor had to serve all the compartments, both on the upper and lower deck, whether by means of stairs, steps or ladders.

In a new model designed by the Swiss Fabrique de Wagons & d'Ascenseurs, S.A. Schlieren-Zürich, the fundamental improvement lies in the arrangement of the two quite separate corridors, one on each deck, on opposite sides of the vehicle. Thus access to both the lower and upper decks is effected independently from the end vestibules, and each passenger can reach his compartment directly via one or other of the corridors.

The bogies of the car have a double set of springs between bolsters and axleboxes, the hangers, or guides, and the bearing sockets resting, moreover, on reinforced rubber pads. The body is of welded tubular construction, and light metal is used wherever possible for the internal



Cross sections, left, of double deck car with individual compartments and, right, of an ordinary single deck sleeping car with two in a compartment



Side elevation and plans of upper and lower decks of double deck car

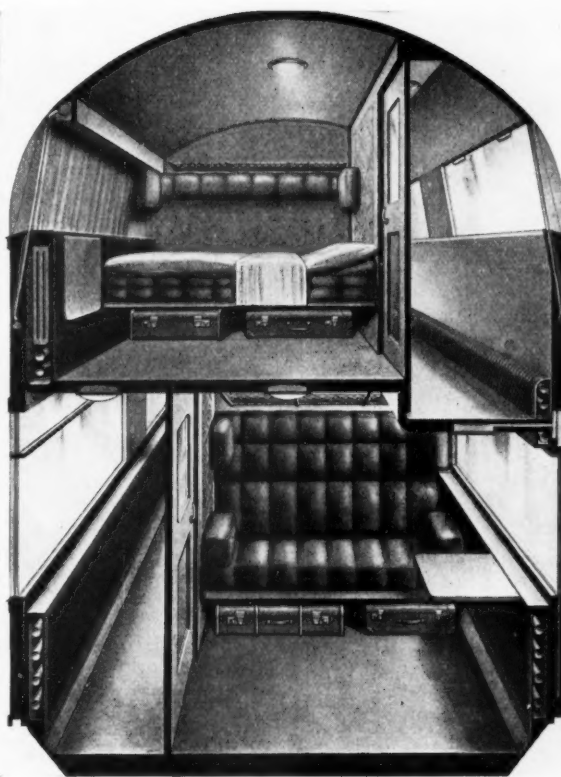
equipment and fittings. It is slung, between the bogies, as low as is permissible by running dimensions.

The general arrangement as well as many of the details of the design can be seen from the accompanying illustrations. It may be mentioned, however, that each compartment contains a comfortable *chaise-longue* for the day traveller, and for night use the upholstered back is placed horizontally and turned into a bed. Each pair of adjoining compartments can be connected by opening a sliding door. Attention is drawn to the short easy stairways, both to the upper deck and down to the lower, and to the fact that the upper corridor is a step lower than the compartment floors. Close to the seat, by the window of the attendant's compartment, is the roof of the side entrance over the bogie. A large aperture in this roof enables the attendant both to hear and also see by means of an oblique mirror what is going on in the lower gangway, without leaving his seat. A kind of "one-way traffic" will be established, by the aid of notices, to avoid the inconvenience of passengers passing each other in the corridors.

In all, there are nineteen passengers' berths and compartments, and the height of the latter, as also of the two corridors, is 1.9 metres (6 ft. 2 $\frac{3}{4}$  in.). The car is estimated to weigh about 53 tons.

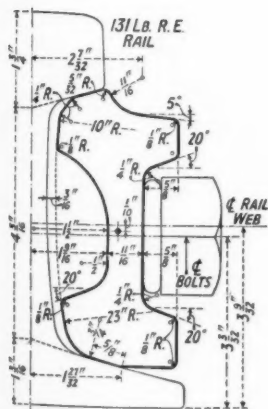
A cardan drive from the axlebox—the newest construction of Brown, Boveri & Co.—is used for the generators, which provide sufficient current for lighting, for the electric cooker, and for water heating, and they could also be applied to the electric ventilation of the car, as sufficient space is available for the requisite batteries.

This new type of a sleeping-car is intended as much for day as for night use, as it offers considerable advantages for long journeys, especially for persons accompanied by small children, invalids, &c., who can thus enjoy the privacy of their own compartments. A patent has been taken out for it in all countries.

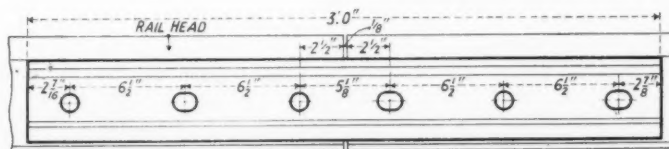
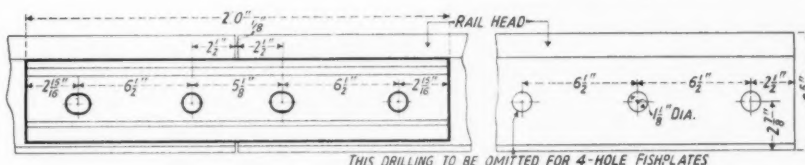
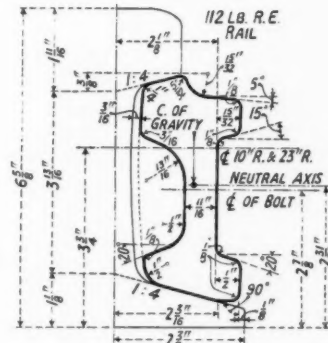
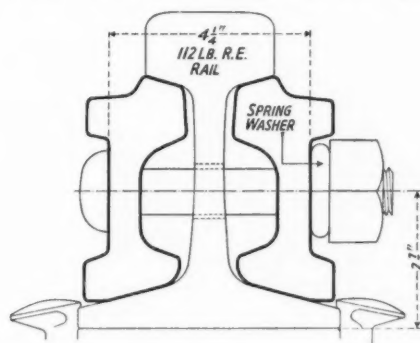


Perspective drawing showing the double deck sleeping car in section

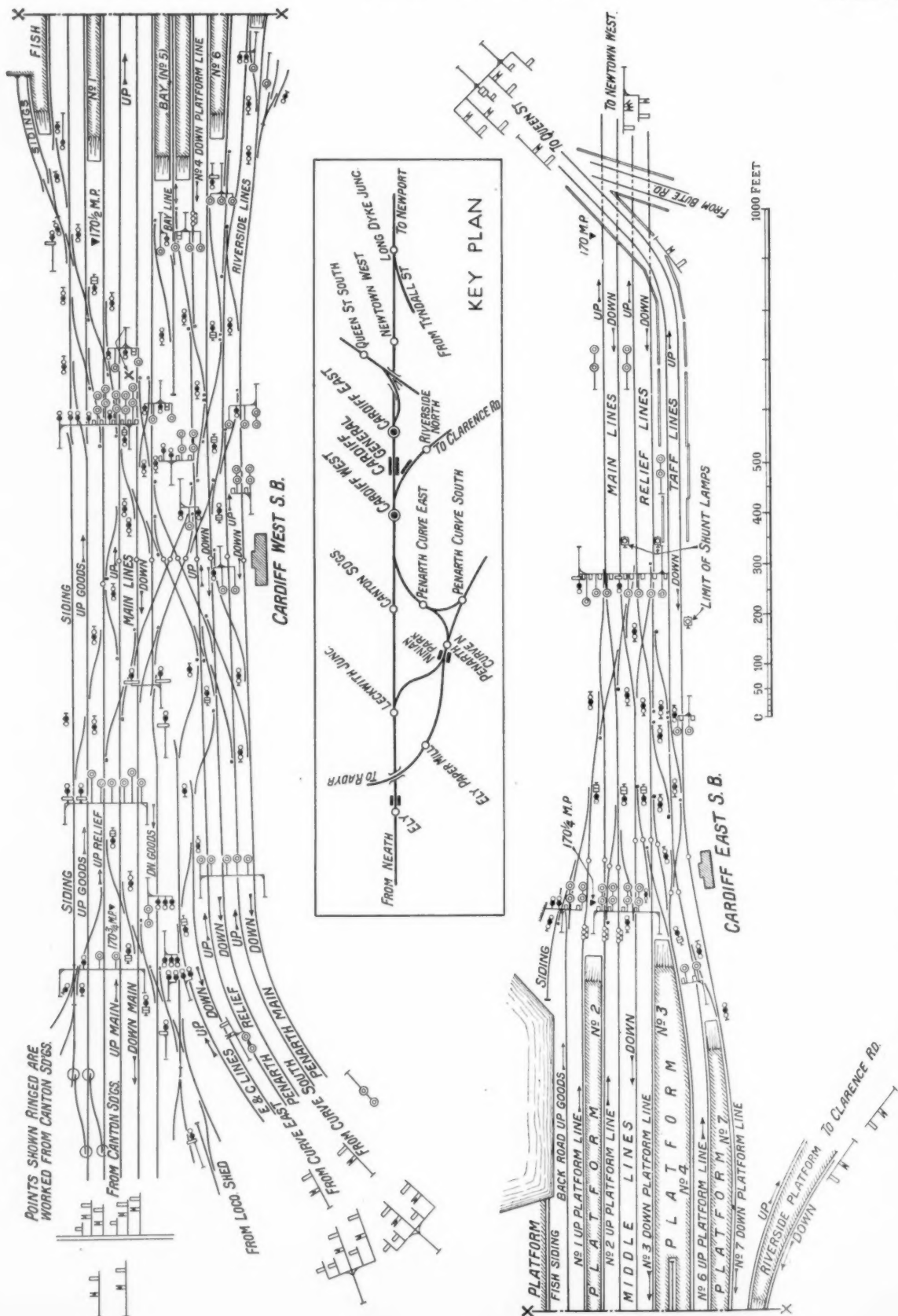
### New U.S.A. Standard Fishplates



At the Annual Convention of the A.R.E.A. held at Chicago in March, new designs of standard fishplates were adopted for use with the new standard 112 lb. rails described in "The Railway Gazette" of August 11, 1933 (page 220). Our drawings show these and also the proposed new fishplate for the 131 lb. standard rail described in "The Railway Gazette" of April 14, 1933 (page 530)



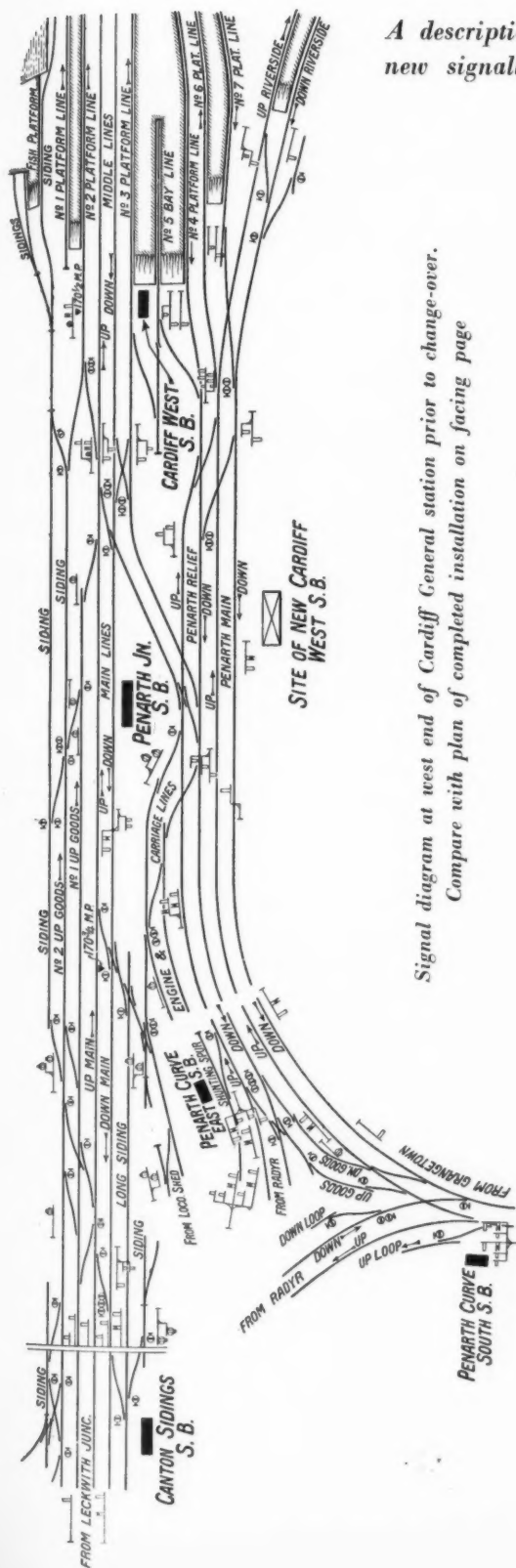




Signal diagram and key plan of the completed power signalling installation at Cardiff General, G.W.R.

## CHANGING OVER FROM MANUAL TO POWER SIGNALLING AT CARDIFF

*A description of the work involved in bringing into operation the new signalling installation for the new track layout at Cardiff West, Great Western Railway*



Signal diagram at west end of Cardiff General station prior to change-over.  
Compare with plan of completed installation on facing page

IN the article describing the power signalling installation at the new Cardiff General station which appeared in our June 30 issue last year, shortly after the opening of the East box on May 28, reference was made to the prospective opening of the new West box. This duly took place on January 7 last.

Traffic at Cardiff falls into two principal categories, viz., main line to and from London and West Wales, and local to and from Cardiff Docks via Riverside, and Queen Street (Taff Vale), Penarth and Barry, a total of 306 passenger and 141 freight trains being dealt with during the 24 hours. So far as ordinary passenger traffic is concerned there is little interchange of services between these two groups, but mention may be made of the through train from the South Wales ports to the Tyne ports which, diverted at Bridgend to the Vale of Glamorgan line and calling at Barry and Penarth Dock stations, reaches the main line again via the junction at Cardiff West box. Another service is the local one between Riverside station and the Barry Railway to Creigiau and Pontypridd, via the G.W. main line and St. Fagans. Owing to the disappearance, at an early stage of the alterations, of the direct junction from the Riverside lines to the main line and the impossibility of bringing into use the new junction on account of Penarth Junction signal box occupying the site, this service had to be diverted temporarily via the Penarth relief lines and East and North Curve junctions, rejoining the main line via the new loop at Leckwith Road junction.

With the exception of a few excursion trains, all passenger trains stop at Cardiff and a considerable amount of engine changing and tail work in connection with these trains is the general rule. In addition the movements to and from the engine and carriage sheds are very numerous (those to and from the engine shed alone amount to 170 during the 24 hours), while an important business in milk, fruit, &c., at the depôt and fish loading dock on the up side entails a considerable number of shunting movements. These factors have had an important bearing on the arrangements which had to be made during the 29 temporary stages previous to the bringing into use of the new layout and power signalling at the West box, particularly in view of a time limit for completion.

The changeover from two mechanical boxes of 36 and 115 levers respectively to the power box with 339 levers and at the same time bringing into use the whole of the new permanent way layout (with a minor exception) was one of considerable magnitude and represents, so far, the biggest job of this nature carried out by the Great Western Railway. A description of the arrangements by which the undertaking was carried through to a successful conclusion is the purpose of this article.

As the result of the preliminary temporary stages of the work at the west end, by the time the final stage was reached the whole of the permanent layout had been completed with the exception of a small block of fittings to be laid in on the site of Penarth Junction box. As little of this layout as possible, consistent with maintaining traffic facilities, had been connected up to the existing boxes, thus enabling the major portion of the apparatus for the power operation of points to be fixed, and the light

signals to be erected and tested beforehand; moreover—and this a point which will be appreciated by signalling and operating officers—permanent way work was practically eliminated on the day of opening. One of the most important factors in power signalling is the efficient working of the track circuits; there are 120 of these at Cardiff West and, although many of them could be installed and tested without difficulty before the day of opening, a considerable number were implicated in blocks of fittings with points mechanically operated temporarily from the existing boxes. To enable these also to be tested out beforehand the mechanical fittings to these points were insulated while in use, excepting in a few cases of facing points where the expense would have been prohibitive.

Special temporary lighting arrangements, in addition to the permanent lighting, were provided throughout the area, and telephones were temporarily installed at points convenient for testing apparatus, communications between signal-boxes and groundmen.

The date of opening, January 7, having been fixed, a programme was drawn up jointly by the departments concerned defining the progress of operations during the occupation, stage by stage, and so well planned were the arrangements that no hitch occurred throughout, and no delay to trains was incurred beyond that due to the occupation restrictions of speed. The operations were divided into four stages which will be understood by reference to the diagram of the layout and signalling on page 720.

**Stage 1.**—Commencing at midnight on Saturday the whole of the points and signals on the up and down Riverside to Penarth main lines and Nos. 6 and 7 platform lines, controlled from Penarth Junction box and the existing West box were disconnected. There was no traffic on these lines from then until this operation was completed. The following block telegraph apparatus was transferred to the new West box:—

Riverside North—New West box for up and down Riverside lines.  
Cardiff East—New West box for Nos. 6 and 7 platform lines.  
New West box—Penarth South curve for up and down Penarth lines.

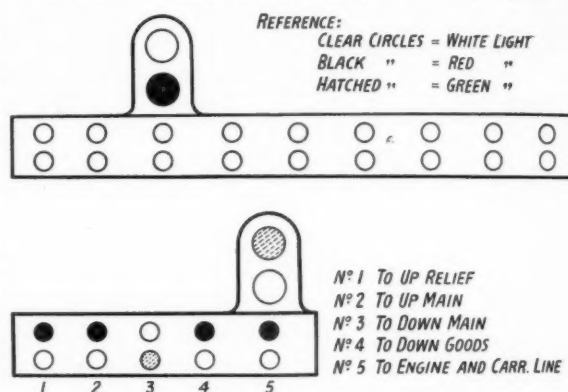
By substituting roundmen the remaining points and signals at the existing West box were disconnected and this box was now taken out of use, except for the purpose of temporarily operating the block telegraph for Nos. 3 and 4 platform lines between Cardiff East and Penarth Junction boxes. The latter box was retained during this and the next stage for maintaining in mechanical operation the up and down main lines, engine shed and sidings on the up side.

Reverting to the Penarth main and Nos. 6 and 7 platform lines, signal gangs immediately set to work removing the signals and mechanical fittings to enable the signal contractors' men to follow up with the connecting up of the power operation of the points and light signals to the new West box.

**Stage 2.**—Upon completion of Stage 1 the next operation was to disconnect from Penarth Junction box all points and signals on the up and down Penarth relief lines, No. 4 platform line, the bay line, and the up and down engine and carriage lines, and, as in the previous stage, there was no traffic on these lines until the completion of the stage. Block telegraph for the up and down Penarth relief lines was simultaneously transferred from Penarth Junction to the new West box, as between the new West box and Penarth Curve East box; and for No. 4 platform line from the old to the new West box as between Cardiff East and the new West box. Removal of mechanical apparatus and connecting up the power installation proceeded as in Stage 1.

**Stage 3.**—This was by far the largest and most important stage in the changeover and involved the final dis-

appearance of Penarth Junction and the old Cardiff West signal-boxes, with the transfer of the remaining block telegraph apparatus to the new West box, traffic operations meanwhile having to be maintained by groundmen on the main line side until the connecting up of the remaining work was completed. The magnitude of this operation made it necessary for this stage to be sub-divided in order that traffic facilities should be handed over in the order of their importance. Attention was first given, therefore, to providing through facilities from the up lines through the station and access to the fish platform and loading dock. Following this there remained the main line connections to the engine shed, the depot sidings connections, and remaining junction—with an exception to be referred to later—to be dealt with, and with the connecting up of these the operations were complete. The dismantling and removal of the old boxes was commenced simultaneously with the opening of this stage, the West box being cleared and loaded for dispatch by 5.30 p.m. Penarth Junction



Pointer-light route indicating signals: above, aspect of signal at "stop"; below, starting signal from locomotive shed indicating line clear to down main

box, measuring 58 ft. by 12 ft. by 25 ft. to ridge, and containing a frame of 115 levers, took longer, of course, but was cleared and loaded by 5.30 on Monday morning. It should be pointed out that this box was standing foul of the junctions from the Penarth lines to the down goods and down main lines and until it had been cleared this junction could not be laid in completely. These involving five pairs of points only, were laid in and connected up on the following Sunday morning.

A certain time had been allotted to each of these stages spread over the occupation from midnight on Saturday to 6.0 p.m. on Sunday, with arrangements for a possible extension, but so well had every detail been prepared beforehand that the whole of the changeover, with the exception of the five sets of points mentioned above, was completed by 2 o'clock on Sunday afternoon, four hours earlier than had been anticipated under the best conditions. It may be mentioned that 94 trains had had to be dealt with during these operations, in addition to engine movements and shunting. A further complication to be contended with by the traffic staff arose from the continual manœuvring of the crane and Signal Department material train picking up signals and apparatus thrown out of use, and loading up the old signal boxes. 27 signals, 16 of them bracket signals, 27 independent discs, and 13 sets of facing point gear had to be dealt with, the whole of these being cleared simultaneously with the completion of the work at 2.0 o'clock in the afternoon.

A specially printed signal notice giving a clear and concise description of the alterations was issued well before-





*General view at west end of reconstructed Cardiff general station with gantry carrying starting signals for (left to right) up siding, goods, relief, and main lines*



*View from west end of station, looking in the opposite direction, taken from the spot marked X in upper illustration*

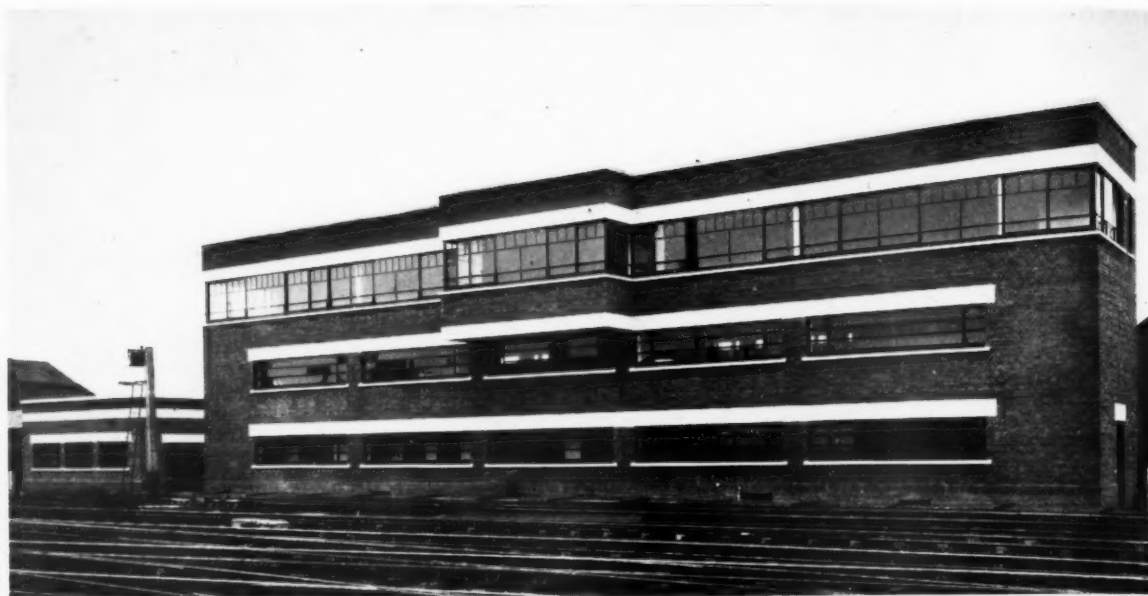
hand to all the staff concerned, while supplementary instructions were supplied to individual groups containing details of their particular duties. The searchlight signals are of two aspect type, in accordance with Great Western standard practice, and the signal notice contained a sketch of each signal or group of signals with its description, particulars of its position and reference, by means of distinctive letters, to diagram accompanying the notice. The pointer light route indicating signal, which has proved a great success at the East box, was included in the notice in the manner shown in one of our illustrations. The signalmen had previously been instructed in the operation of the new power frame, and made acquainted with the layout and signals from a study of the signal-box diagram and a noteworthy feature was the efficient manner in which they handled the new frame from the commencement.

It may be of interest to mention two features which have been added to the signalling at the West box since the article appeared in our June 30 issue. The working on the down main and No. 3 lines necessitates the home signals

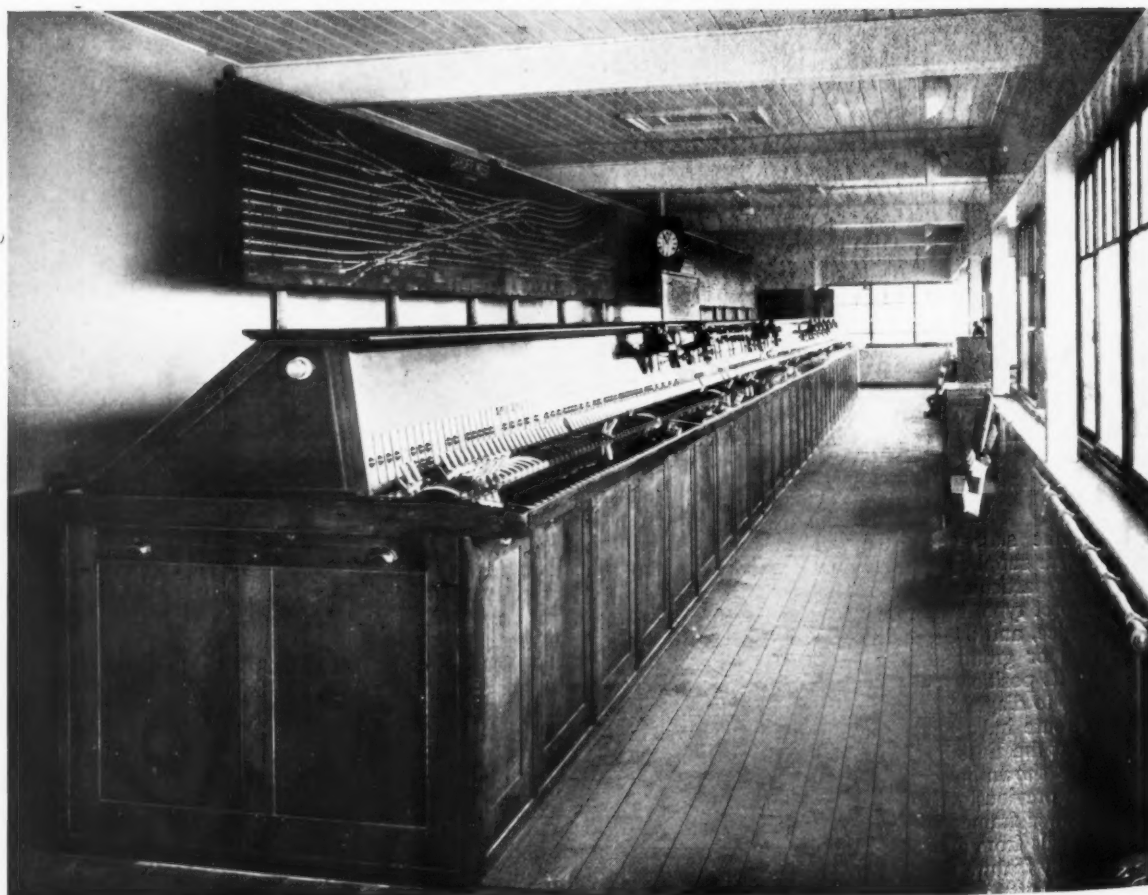
for these lines being fogged, and, to obviate the employment of fogmen, 3-shot detonator machines operated by motor have been provided, which place or take off detonators on these lines immediately ahead of the signals. The arrangements are such that the detonators stand normally on the line and are removed by the changing of the signal from red to green. To prevent their replacement, should the signal be put to danger before their position on the line is clear, they are controlled by the short track circuit immediately ahead of the signal. They also give a warning should the driver overrun these signals at danger.

Drivers of trains running into the up goods loop between the West and East boxes have to be informed of the number of trains, if any, already in the loop. An indicator of the illuminated stencil type has been fixed, therefore, upon the signal for entering the loop giving indications from 0 to 4. These indications are given automatically by the operation of the commutator of the permissive block instrument in the East box.

From the commencement the alterations have been the

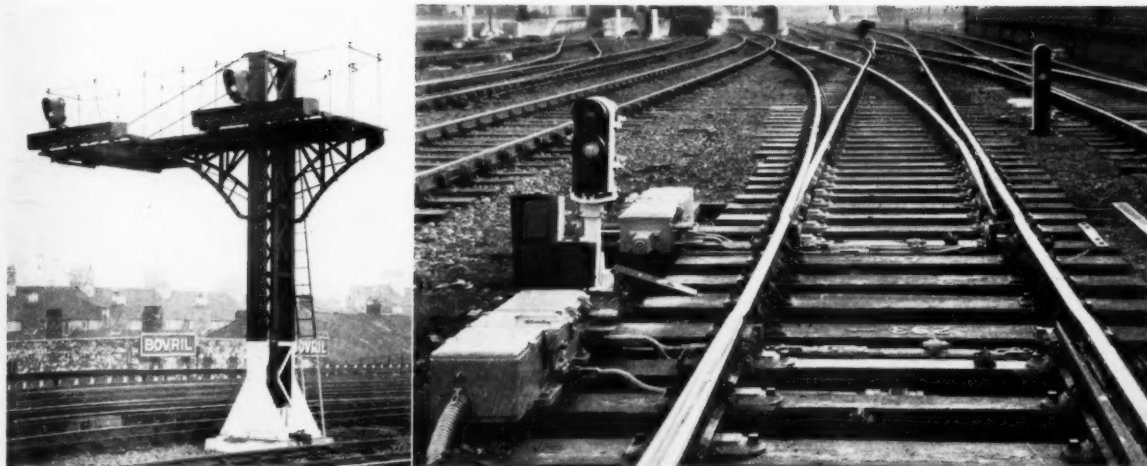


*Cardiff West box*



*Interior of Cardiff West box*

THE NEW POWER SIGNALLING AT CARDIFF, G.W.R.



*Left: Pointer light route indicating signals for backing from down main and down goods lines, Cardiff West. Right: Route indicating disc and facing point layout*

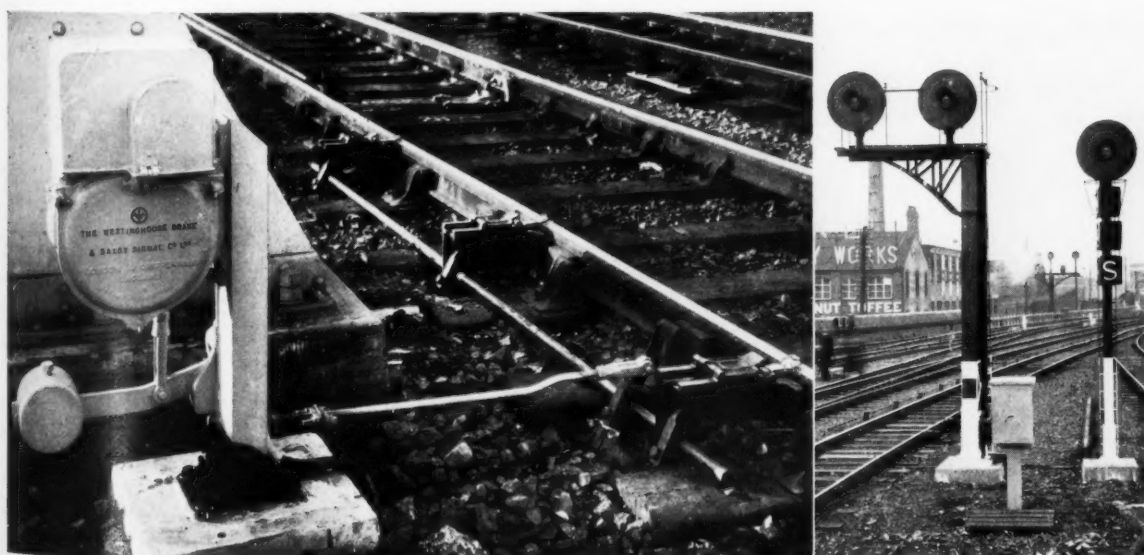
subject of a weekly meeting between the local and other officers of the departments concerned. At these meetings progress has been reported, emergencies have been dealt with, and future stages of the work have been discussed and, if necessary, reviewed. An important object, in view of the limited time for completion, has been to keep progress in line with the main programme and at the same time to interfere as little as possible with the train services, a matter of no small difficulty owing to the amount of bridge reconstruction and to the fact that the new scheme had to be superimposed upon an existing layout.

The contractors for the power signalling installation were the Westinghouse Brake and Saxby Signal Co., and it may be of interest to add that the West box as well as the East box was brought into use within one year from the commencement of their operations on the ground.

In conclusion, mention should be made of an exceptionally severe test to which the installation was subjected a

fortnight after the opening. On January 27, on the occasion of the International Rugby football match between England and Wales, 21,277 passengers arrived at the General station between 9.0 a.m. and 2.0 p.m. In addition to the ordinary service, 19 excursion trains were dealt with during two of the busiest portions of the day at the General station. Each of these trains on arrival, and after unloading, had to be run to its stabling point and its engine disposed of; the converse operations had to be handled for the return journey, and the fact that not a single hitch or delay to a train occurred speaks well for the efficiency of the new signalling installation and for the remarkable advantages accruing from the vastly improved accommodation provided by the new works.

It is interesting to add that the annual summer meeting of the Institution of Signal Engineers is to be held at Cardiff in June when the opportunity will be taken to inspect the installation on Friday the 15th.



*Left: Motor-operated 3-shot detonator machine on No. 3 platform line. Right: No. 4 platform and bay line starting signals; bay line route indicator illuminated for "Siding"*





*Above: The Vado viaduct which carries the new railway over the Vado valley and the Cassia national road*

### The New Florence - Bologna Direttissima

*(See editorial article on page 710  
and news article on page 734)*



*Right: Exterior of the new Prato station, at the southern end of the Direttissima, which has replaced the old station nearby*



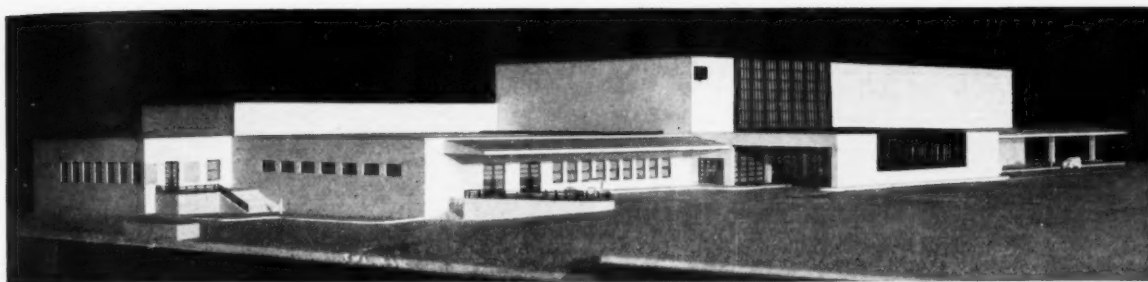
*Section of the new line in open country. Every effort has been made to secure straightness, and some 58 km. of the total of 80 km. are straight*



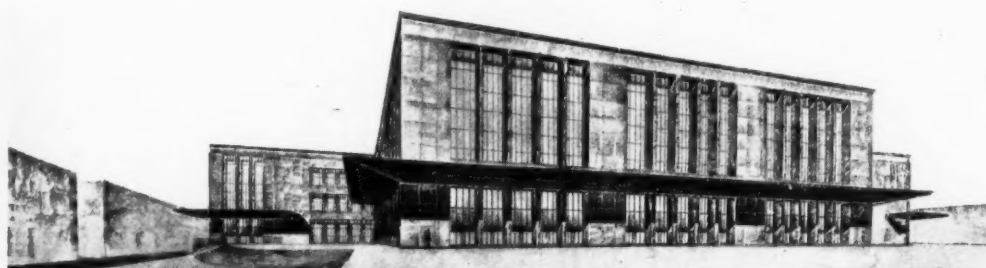
*Passing station about halfway in the great Apennine tunnel, which is widened at this point to take four tracks and so enable fast to overtake slow trains*

# **Designs for the New Florence Station**

*(See editorial article on page 711 and news article on page 734)*

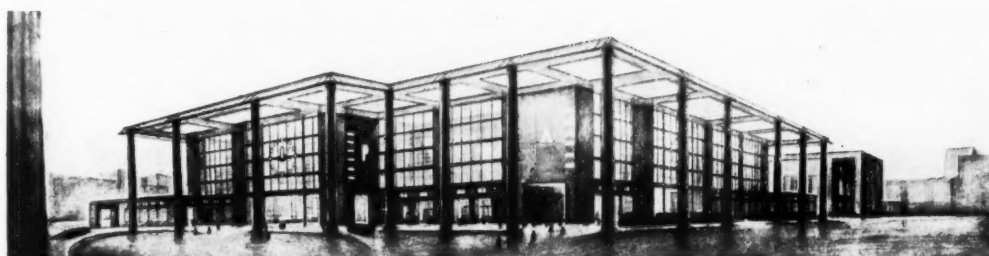


*The winning design, by a group of six architects, in the competition for a new central station at Florence. It is an indication of modern Italian feeling to note that the traditional design originally proposed was so heavily criticised that a competition for a modern design had to be held*



*Second  
prize  
design*

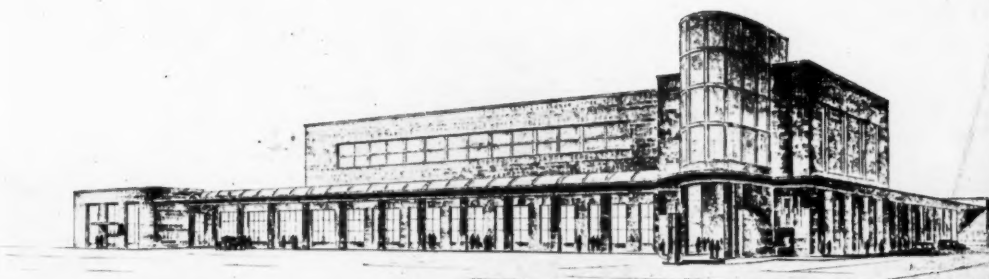
*Third  
prize  
design*



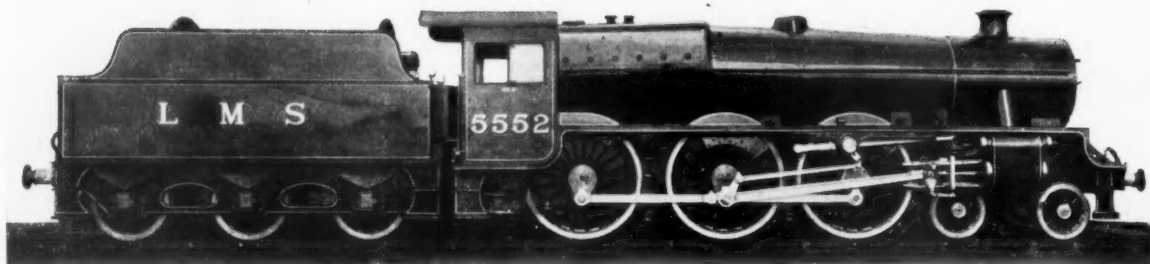
*Fourth  
prize  
design*



*Fifth  
prize  
design*



## NEW THREE-CYLINDER EXPRESS LOCOMOTIVES, L.M.S.R.



ALTOGETHER 113 three-cylinder 6 ft. 9 in. 4-6-0 type superheated passenger tender locomotives are at present being built to the designs of Mr. W. A. Stanier, Chief Mechanical Engineer of the L.M.S.R. No. 5552 was included among the rolling stock exhibited at Euston on Monday last, and referred to on page 711. Of the total number of engines, 53, Nos. 5552 to 5556 and 5607 to 5654, are being constructed at Crewe, and 50, viz., Nos. 5557 to 5606, by the North British Locomotive Co. Ltd., Glasgow. Nos. 5655 to 5664, will be built at the company's Derby works.

The engines constructed at Crewe and Derby will have smaller tenders than those built by the North British Locomotive Company, the respective capacities being 3,500 gallons of water and 7 tons of coal and 4,000 gallons of water and 9 tons of coal. The wheelbase of the former is 13 ft. and of the latter 15 ft. The coal bunker has been carefully arranged so that as far as possible the coal will be self-trimming. The engines, which are classified 5XP, have tapered boilers with Mr. Stanier's moderate superheater, whilst the cab and tender are also of modified design. They incorporate many of the standard components as used on the 2-6-4 tank engines illustrated and described in THE RAILWAY GAZETTE of March 30, 1934, to which we would refer our readers for details. The boiler pressure is, however, 225 lb. per sq. in. as compared with 200 lb. per sq. in., and the boiler is larger, though in general arrangement it is similar. Boiler mountings, such as the water gauge frames and protectors, are of the railway company's standard type. A Davies & Metcalfe exhaust steam injector is fitted on the fire-

man's (*i.e.*, the right-hand) side, and a Gresham & Craven live steam injector on the driver's side. Steam is distributed to the three cylinders by separate sets of Walschaerts valve motion, a valve travel of  $6\frac{3}{8}$  in. being given to the outside cylinders and  $6\frac{1}{8}$  in. for the inside cylinder. The usual type of water feed valve and control is fitted. A steam brake is applied to each of the six tender wheels, and this acts simultaneously with the steam brake on the engine. As a further means of obtaining smooth running the intermediate drawgear has been designed with buffing spindles controlled by coil springs. The buffing spindles have specially designed heads, which ride on inclined planes provided on the rear buffer beam of the engine.

Main particulars, not shown on the drawing, are:—

Boiler diameter outside, smokebox end ..	5 ft. 0 in.
firebox end ..	5 ft. 8 $\frac{3}{4}$ in.
Superheater element tubes—	
(14) 1 $\frac{1}{8}$ in. diam. outside $\times$ 11 S.W.G.	
(14) large tubes 5 $\frac{1}{2}$ in. diam. outside $\times$ 7 S.W.G.	
(160) small tubes 2 in. diam. outside $\times$ 11 S.W.G.	
Heating surface, tubes .. ..	1,462.5 sq. ft.
firebox .. ..	162.4 .. ..
Total .. ..	1,624.9 .. ..
superheater .. ..	227.5 .. ..
Combined total .. ..	1,852.4 .. ..
Grate area .. ..	29.5 .. ..
Tractive effort at 85 per cent. boiler pressure (225 lb.) .. ..	26,610 lb.

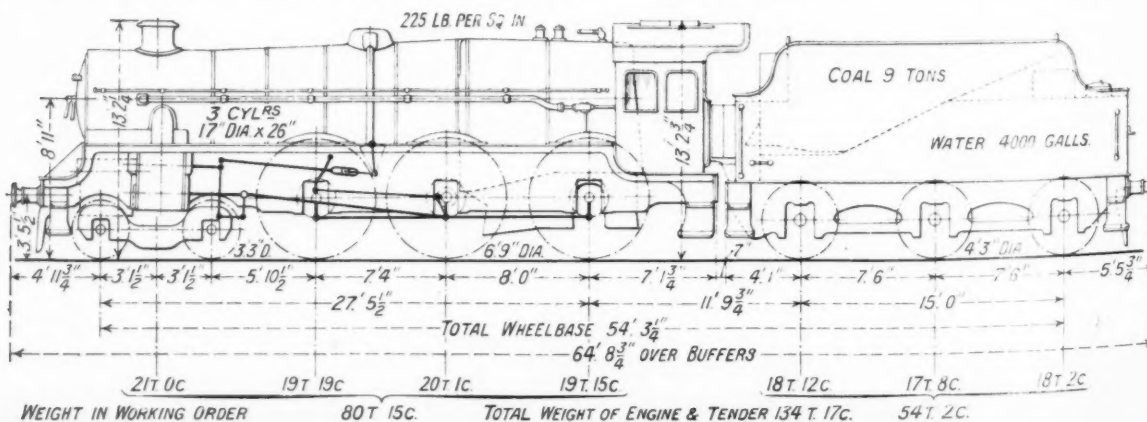


Diagram drawing showing principal dimensions and weight distribution with 4,000-gallon tender



# RAILWAY NEWS SECTION

## PERSONAL

From the *London Gazette*:—Supplementary Reserve of Officers, Royal Engineers (Transportation), Capt. H. F. Sanderson to be Major (March 22). Major Sanderson is Assistant District Superintendent, Stratford, L.N.E.R. He served with the Artists Rifles and later in the Transportation Branch of the B.E.F. in France and Belgium during the great war and has held a commission in the L.N.E. Railway Operating Company, R.E., since its formation in 1925, and now commands that unit.

Lord Faringdon, Deputy Chairman of the L.N.E.R., left estate valued at £1,021,696 (£986,075 net).

Sir F. Drummond Chaplin, G.B.E., K.C.M.G., a Director of the Beira Railway, left estate in England valued at £67,302 (£59,348 net).

Mr. C. B. Byles, who retired in 1930 from the position of Signal Engineer, New South Wales Government Railways, and was formerly Signal Engineer of the Lancashire & Yorkshire Railway, recently arrived in London on a visit.

We regret to learn of the death, on April 15, at the advanced age of 91 years, of Mr. Harry L. Davis, who, until he reached the age limit, had, for many years, been the Signal Assistant to the Chief Engineer of the Great Eastern Railway.

### INDIAN RAILWAY STAFF CHANGES

Mr. A. V. Venables, M.C., V.D., A.M.Inst.C.E., Chief Engineer, E.I.R., has been appointed Officiating Agent in place of Sir Hugh Hannay, who is retiring.

Mr. C. A. H. Edwards, Deputy Chief Engineer, N.W.R., has been permitted to retire from Government service as from March 15.

Mr. R. H. Mackie has been appointed to officiate as Locomotive Superintendent, Burma Railways, as from March 2.

Mr. J. H. Rickie has been appointed to officiate as Deputy Chief Engineer, Burma Railways, as from February 27.

Mr. G. Charlton, Deputy Agent, M. & S.M.R., has been granted four months' leave and Mr. C. G. W. Cordon has been appointed to act in his place.

Mr. N. C. Ghose has been posted as Divisional Superintendent, Asansol, E.I.R.

### NEW L.M.S. ELECTRICAL ENGINEER

Lt.-Col. F. A. Cortez Leigh is shortly retiring from the position of Electrical Engineer to the London Midland & Scottish Railway, after 25 years' service in this capacity with the L.M.S. and the former L.N.W. Railways, but the company will, for the present, retain his services in an advisory capacity and his representation in other L.M.S. interests, including membership of the Scientific Advisory Committee. He will be succeeded by Mr. C. E. Fair-

burn. Mr. Fairburn joined the Railway Department at Siemens Bros. dynamo works, going to the North East Coast in 1913, there taking charge of the outdoor erection work for the Newport-Shildon line and putting into service the overhead line and locomotives between then and 1916. In the latter year he joined the Royal Flying Corps as Experimental Officer and eventually commanded an Experimental Squadron as Major. In 1919 he joined the English Electric Co. Ltd., to organise and build up a Railway Electrification

Department. Mr. Fairburn became General Manager of the Preston Electrical Works in 1926, of the Car Works in the following year, and of the Stafford Works in 1928, though retaining charge of the other two works at Preston in addition. He was also in control of the Traction Department at the same time. In 1931 he returned to London as Engineer and Manager of the Traction Department, with responsibility for all classes of railway material, and in 1933 was in addition appointed Chairman of the Contractors' Committee for the electrification of the Polish State Railways, the contract being a joint one between the Metrovic and English Electric Companies.

Lt.-Col. F. A. Cortez Leigh, whose impending retirement is announced above, was appointed Electrical Engineer of the former London & North Western Railway in 1910. On the formation of the London Midland & Scottish Railway he became Electrical Engineer of the Western Division and in 1925 Electrical Engineer of the whole system. We hope to publish a full account of Colonel Cortez Leigh's career nearer the time of his retirement from the position of Electrical Engineer. Our readers will recall that so recently as April 6 he contributed a signed article to our monthly *Electric Railway Traction Supplement* entitled "Thirty Years of Railway Electrification."

We regret to note the death last week of Mr. T. Trimmell, Solicitor to the British Electrical and Allied Manufacturers' Association in his 74th year.

## Forthcoming Meetings

May 1 (Tues.)—*Compagnie Internationale des Wagon-Lits et des Grands Express Européens* (Ordinary General), 53, Boulevard Clovis, Brussels, at 2 p.m.



Photo by]

["Railway Gazette"]

Mr. C. E. Fairburn, M.A.,

Appointed Electrical Engineer, L.M.S.R.

burn, who will enter upon the duties on July 1 next.

Mr. Fairburn had a brilliant career at Oxford, taking no fewer than three First Classes, in Mathematical Moderations, Mathematical Final Schools and Engineering. He took his B.A. degree in 1908 and M.A. in 1912, and in the former year was awarded a Senior Hulme Exhibition at Brasenose College for four years, which is for graduates only. From 1910-12 he was a pupil under Sir Henry Fowler at Derby, L.M.S.R., simultaneously studying Metallurgy at Sheffield University. In

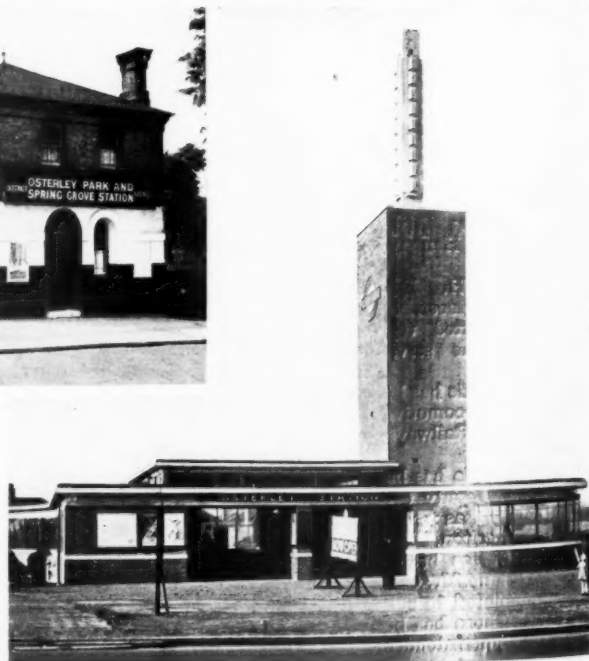


Left: Mr. David E. Roberts unveiling the memorial to Richard Trevithick at Merthyr on Thursday of last week. The monument stands on the site of the old Penydarren tramroad on which Trevithick ran his famous high-pressure locomotive in 1804

Right: An animated scene in one of the L.N.E.R. popular and now numerous buffet cars. We made reference to this facility in our issue of October 21, 1932, briefly describing and illustrating the first coach of the type



Above: The old Osterley station of 1883, in Thornbury Road, on the Hounslow branch of the District Line, London Passenger Transport Board. This was replaced on March 25 last (see "The Railway Gazette" of March 30, page 560) by the new building shown on the right. A sketch map showing the new location appears on page 738 herein



## French Railways Reorganisation Act

An outline of the measures to be adopted  
for reducing the French railway deficit

(From our own correspondent)

The French Government's scheme for the reorganisation of the railways has now force of law and is in course of application. Final approval was given by the Council of Ministers after further explanations by M. Flandin, Minister of Public Works, on April 19, and the next morning the plan, embodied in two decrees, was published in the *Journal Officiel*. Enforcement dates from the day of publication, April 20. This quick method of procedure by decrees having the force of law is rendered possible by the full powers conferred upon M. Doumergue, the Premier, whom Parliament has authorised to take all measures deemed necessary for the reduction of public expenditures with a view to balancing the budget. The decrees are subject to parliamentary ratification before October 31, 1934. One of the two railway decrees deals with modifications of the pension and wage systems and the other with the co-ordination of rail and road transport.

The pensions decree provides that from January 1, 1934, payments to be made by each of the principal railway systems to its pension fund are reduced to the amount required to meet the expenditures of the fund for each year. This stipulation relieves the railways of the need for maintaining large capital reserves to cover pension fund requirements. Railway pensions are thus placed on a basis similar to that of State pensions. Every year each railway system must submit a statement of the financial position of its pension fund for the approval of the Minister of Public Works. The first statement will show the position on December 31, 1934.

New scales of wages and salaries are applicable to railway employees from April 20. Graduated reductions, ranging from 5 per cent. to 10 per cent., are made. The 5 per cent. rate applies to wages amounting to less than 20,000 francs (£150\*) a year. The highest rate applies to salaries of more than 100,000 francs (£800). Bonuses and indemnities of various kinds are also subject to cuts. These are generally 5 per cent. because the bonuses almost entirely go to employees earning less than 20,000 francs. House rental indemnities, which are paid to numerous railway workers, are cut by 10 per cent. No change is made in indemnities payable for displacement expenses or on account of family (allowances for children, births, &c.). These changes in wage scales are alluded to only indirectly in the decree, the actual adjustments being left to the companies. But the decree specifies adjustments of pensions based on the new scales.

In general the pensions are to be adjusted to new wage scales coming into force from April 20. Pensions thus revised are then to be subject to a cut of 10 per cent. But such must not reduce the original pension by more than 15 per cent., nor must it reduce any pension below a minimum of 5,000 francs. In any case, however, the revised pension must not be more than the pension previously allowed. The pension revision takes effect from April 1, 1934. The pension system for railway employees engaged after April 20, are to be subject to new regulations which must be drawn up and approved before June 1. Every employee will have the right to a pension after 25 years of service, if he has reached the age of 50, in the case of firemen and drivers, or 55 for all other workers. An increase for children may be allowed, but such increase must not raise the pension by more than 20 per cent. above the ordinary maximum.

Optional retirement on pension may be allowed for a period of three years after the decree is in force, provided that the person applying for the pension would fulfil the conditions of age and service within three years. The amount of the pension to be accorded is the same as that to which he would be entitled if he remained at work for the full period. He will also benefit by the same accessory advantages as normal pensioners. Within the same three-year period, immediate pensions will be allowed on demand to employees after at least fifteen years of service at the age of 50 for men and 45 for women. The pensions allowed will be the same as if they had been invalidated out of service, and they will benefit by the same accessory advantages as invalid pensioners. For such pensions account will also be taken of the time spent in military service during the 1914-1919 war.

Every three months, the railway systems, after taking into account the needs of the service in each category of employment, will fix the number of employees liable to be admitted to optional retirement. Should the number of employees applying for optional retirement under the specified conditions not amount to the number fixed by the railways, the surplus number of employees in each category may be compulsorily retired, taking into consideration the situation in regard to age and family and the requirements of the service. This measure will be applicable only to employees who would fulfil the conditions of age and service for a normal pension within a maximum period of five years.

The co-ordination decree announces that with a view to reducing the finan-

cial burdens of the State, a committee attached to the Ministry of Public Works has been formed for the purpose of carrying out the co-ordination of rail and road transport. This co-ordination committee comprises five experts. One is designated by the managing committee (*comité de direction*) of the principal railway systems; one by the professional organisations of the secondary lines (*voies ferrées d'intérêt local*); one by the recognised road transport organisations having contracts with the State, the departments or municipalities, and two experts by recognised road transport interests having no contracts with the State, the departments or municipalities. The Minister of Public Works will draw up a list of organisations entitled to designate the experts. In default of agreement between them, he will take action himself. The committee will also include an arbitrator, unanimously designated by five experts subject to approval by the Minister of Public Works, or, in default of agreement between the experts, by the Minister himself. The experts and the arbitrator will be appointed for a period of three years.

This co-ordination committee will aim at reaching departmental and regional agreements between all forms of transport agencies concerned in the provision of the public transport of passengers and goods by rail and road, including long-distance transport. If no agreement can be reached, the arbitrator is to submit proposals to the Minister of Public Works for the maintenance or modification of existing services, or for the suppression of some of them within a period specially fixed in each case and for the establishment of new services. The agreements or the proposals are to be carried out after approval given by a decision of the Minister of Public Works. The composition and powers of the co-ordination committee may be extended or modified by a decree of the State Council (*Conseil d'Etat*).

The ministerial decisions, approving the agreements or the arbitrator's proposals, will lay down the conditions to be complied with in the case of road transport. These conditions will govern timetables and tariffs, the obligation to assure the service and equality of treatment between users and the acceptance of postal transport. The decisions will also fix the duration of the agreements.

No new service of public transport may be established after the publication of the co-ordination decree until the ministerial decisions are given. No new service may be established after the issue of the ministerial decrees without the authority of the Minister of Public Works, given after inquiry by the co-ordination committee.

Within a fortnight after the publication of the co-ordination decree, all contractors providing public transport services not under contracts with the State, the departments or municipalities, must sign a declaration outlining the scope of their enterprises at

\* At 80 francs to the £1, approximately the current rate at which other sums mentioned in this article have been converted.



the local prefecture. The declaration must indicate the professional group of transporters with which the contractor is affiliated. Infringements of the stipulations of the co-ordination decree will be subject to a fine of 16 to 200 francs. The penalty for repetition of the offence will be withdrawal of the contractor's permit to run his vehicle for a period varying from three months to one year.

It is expected that the cuts in wages and pensions and the economies effected by the re-organisation will reduce the railway deficit by 2,000 million francs (£25,000,000) a year. The total deficit for last year is estimated at 4,500 million francs (£56,000,000).

The national budget will not benefit directly to the full extent of the railway economies but only by the amount of the interest payable on loans covering the part of the deficit saved. The railways will save 350 million francs a year by the reductions in wages according to the new scales, which will be drawn up by the managing committee (Comité de direction). An immediate saving of 450 million francs (£5,600,000) will be made by relieving the railways of capital payments to the pensions funds, according to the ministerial report accompanying the two decrees. The permanent saving due to cuts in pensions will be about 70 million francs (£875,000) a year.

The savings thus enumerated will amount to rather more than 800 millions out of the estimated 2,000 million francs. The remainder is to be saved by reorganisation economies. It is clear that this part of the programme will require a considerable time before it can become effective. Reorganisation may involve the closing or partial closing of more than 6,000 miles of secondary and branch lines. Estimates that 60,000 employees may be dispensed with are considered as exaggerated, especially as the French railwaymen's union maintains that the companies have already reduced the personnel by 60,000 during the past three years owing to the adoption of rationalisation effecting thereby an annual saving of 900 million francs (£11,000,000).

Suppression of long-distance road motor passenger and goods traffic, which is to be reserved in principle for the railways, is one of the aims of the reorganisation plan. This may meet with determined opposition by established interests, which have large amounts of capital at stake. It may be surmised that some compromise agreement will be needed to overcome the difficulty. Private firms and companies have large sums invested in fleets of motor-vans running in daily services between the capital and the seaboard, serving also all the important inland towns. The co-ordination decree seems to leave the way open for some understanding. In any case, however, the road services under the reorganisa-

tion plan will be subject to stricter regulations than heretofore. This may be to the benefit of the employees, who will be assured of better conditions of service, more in line with those of railwaymen.

It may be pointed out that the reorganisation plan proposes no increase in passenger and goods rates. Although these are low in comparison with pre-war charges and the rates of other European countries, it is felt that any increase would tend to retard a revival

of trade in France. M. Flandin has even recommended a further reduction in the passenger tax, which was cut from 32½ to 12 per cent. last July. In general, the reorganisation plan, as indicated in the forecast published in THE RAILWAY GAZETTE last week, provides for a comprehensive scheme of agreements between rail and road transport organisations, intended to ensure adequate development, under Government control, of all the interests concerned.

## L.N.E.R. Poster Art

The West End of London this year is not to have the pleasure of seeing in bulk the many fine holiday posters on which for months past certain notable artists, commissioned by the L.N.E.R., have been at work, and the exhibition of which has heretofore been such an attractive annual feature at the New Burlington Galleries and elsewhere. For good and sufficient reasons it has been decided to show this season's output in certain provincial centres only; and with that end in view Mr. C. Dandridge, who is responsible for the enterprise and its artistic direction, has just been arranging an early exhibition of the posters at Bournemouth. Well, London's loss is undoubtedly the provinces' gain—as those who view the posters in a collected form will, we are sure, readily concede. A day or two ago we were privileged to see them displayed (not, it must be confessed, to the best advantage) in the company's board room at Marylebone station, and were impressed with the fact that the high standard set up in former exhibitions is this year fully maintained. The collection is again on

generous lines, and variety, as before, is still its all-pervading and engaging "note"—which is, of course, as it should be, considering the extent and multifarious attractions of the company's numerous holiday resorts.

L.N.E.R. posters stand for "something more than a collection of paintings," as Mr. Dandridge once remarked; and to many a prospective holiday-maker they must prove a perfectly irresistible lure, which is, we submit, the be-all and end-all of their benevolent purpose. Certainly, the artists engaged in their production have done their best that way. Take Mr. Tom Purvis, for example, who shows three large and striking views of Durham, Northumberland and Yorkshire, which by their boldness of outline and vividness of colouring are calculated to make a widespread appeal. Very charming, too, and equally effective, though in a different way, are the six posters—two of them interiors—depicting places of interest in Cambridge, Norwich, Great Yarmouth, Ely, Ipswich and Lincoln, the fine work of Mr. Fred. Taylor. A



**AMSTERDAM VIA HARWICH**  
**FLUSHING BY DAY HOOK BY NIGHT**

INFORMATION FROM CONTINENTAL TRAFFIC MANAGER, LNER LIVERPOOL STREET STATION, LONDON E.C.2, OR HULL 7, REGENT STREET W.1.  
 W. H. MULLER & CO. (LONDON) LTD., 66, HAYMARKET, SW.1. PRINCIPAL L.N.E.R. STATIONS, OFFICES AND TOURIST AGENCIES.

view of Amsterdam, by A. van Anrooy, is a quietly beautiful example of effective poster work; another is the sunny loveliness of a picture by Dorothea Sharp. These are in strange contrast to the droll and clever poster alongside them—a highly colourful conception of Harrogate, by Anna Zinkeisen. An original view of the castle at Scarborough, by Frank Newbould, will doubtless find many admirers—and so, too, will a couple of pictures by Frank H. Mason, one of an L.N.E.R. locomotive, 4472, emerging from a tunnel into a sun-drenched landscape, and one showing the blast

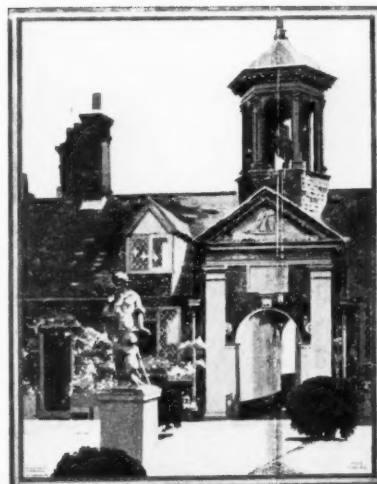
furnace at Appleby Iron Works, Lincolnshire. A particularly fine study, by Michael, is that which shows a couple of travellers getting from a passing train a glimpse of Lowestoft. Doris Zinkeisen's "Dick Turpin" is an arresting piece of work; and another pleasing and unusual picture is that of a knight and his ladye, obtained from a brass rubbing in an East Anglian church by Edward and Barbara Batt.

One of the best features of this year's collection is that represented by six photographic enlargements, which, it is understood, will presently be reproduced as full size posters. They illus-




## CLACTON-ON-SEA FOR MODERN HOLIDAYS IT'S QUICKER BY RAIL

FOR ILLUSTRATED GUIDE APPLY (ENCLOSING 1 STAMP) RECTRY B. COUNCIL OFFICES, CLACTON-ON-SEA OR OBTAINABLE FREE FROM L.N.E.R. OFFICES & AGENCIES



## G<sup>T</sup> YARMOUTH

IT'S QUICKER BY RAIL 

FULL INFORMATION FROM L.N.E.R. OFFICES AND AGENCIES

trate the slogan: "It's quicker by rail," and each shows the interior of a railway carriage with varied couples gazing from the windows at the passing landscape, which is quite easily recognisable. Bridlington, Scarborough, Yarmouth, Clacton, Lowestoft and Skegness are all "viewed" this way. They are very cleverly done and should prove highly popular. Equally good and lifelike are the two photographic enlargements of the buffet cars used on the company's new saloon excursions—pictures at top and appropriate letterpress beneath.

## The London—Isle of Wight Air Service

When Spartan Air Lines Limited recommences operation between London and the Isle of Wight on May 1, the route will be the first to be operated under the auspices of Railway Air Services Limited, the company formed jointly by the principal railways and Imperial Airways Limited. The Southern Railway will co-operate with Spartan Air Lines in this service, which has already enjoyed a successful period of independence in 1933. The route was opened on May 12 of this year and continued in daily operation until October 2. Certain modifications will be introduced when the service reopens, the most important being the transference of the London terminus from Heston airport to Croydon. An intermediate halt between London and Cowes was formerly made at Ryde, where connection was established with the Portsmouth, Southsea, & Isle of Wight Air Navigation Company's service to Shanklin. Under the new arrangements the

machines may call at Bembridge aerodrome instead, although this point has not yet been definitely decided. An augmented service is to be worked this summer, three flights in each direction a day replacing the two formerly scheduled. The flying time of 50 minutes from London to Cowes remains unaltered. The single fare of 28s. will be raised to 30s. but return tickets will be reduced from 55s. to 50s. Passengers holding these will have the

option of making the return journey by Southern Railway train and steamer services (first class). Tickets can be obtained and seats reserved at Waterloo, Victoria, Charing Cross, London Bridge, and Cannon Street stations, Southern Railway, and at a number of Southern provincial and suburban stations, including the principal resorts in the Isle of Wight. The air service will again be operated by Spartan Cruiser 3-engined monoplanes, having a cruising speed of 118 m.p.h., and accommodation for six or seven passengers with their luggage.

**IRON AND STEEL REORGANISATION.**—The British Iron and Steel Federation has adopted the revision of its constitution in accordance with the objects set out in a white paper a year ago. Details of the proposed changes were approved by the members of the Federation on April 19. They provide for closer co-operation between those engaged in the industry and for a measure of control over legislation

affecting the iron and steel and allied trades. The Council of the Federation will consist of a President and Vice-President, 29 members elected annually by the Federation and 41 representatives of affiliated associations. The Council will be responsible for the election of Parliamentary, Transport, Tariff, and Research Committees. The Federation until now has been the National Federation of Iron and Steel Manufacturers.

## The New Florence-Bologna Direct Line

This new electrically-worked line, which includes the longest double line tunnel in the world, was opened by the King of Italy last Sunday

Although the project of a direct line between Florence and Bologna dates back to 1902 when traffic had already begun to tax the old single line via Pracchia, work was not begun until 1913. With the intervention of the war and the troubles which immediately followed it, it was not until the



Sketch map showing relation of new direct line to the main Italian railway routes

advent of Mussolini that work was pushed forward with energy.

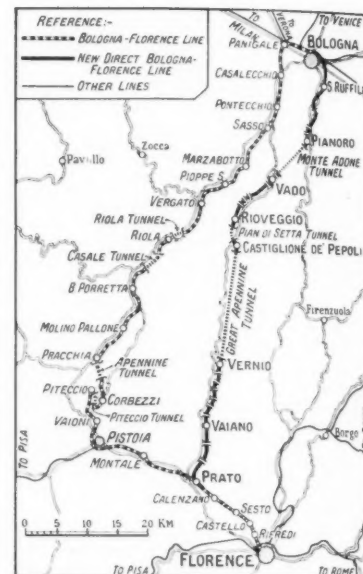
In order that the maximum gradient of the new line should be no steeper than 1 in 83, and the sharpest curve 30 chains, many important bridges and tunnels had to be constructed. The most important of the latter is the great Apennine tunnel, 18,510 metres in length (over 11½ miles), in which the summit of the line is reached at an altitude of 322 metres (1,070 ft.) compared with the existing summit of the old line of 616 metres (2,034 ft.). Other important tunnels are those through Monte Adone, 7,135 metres (about 4½ miles) in length, and the Pian di Setta, 3,046 metres (1.9 miles) long. Of the 80 km. between Bologna and Prato, where the new line joins the old, as much as 58 km. are straight. On the whole line there are 30 tunnels, having a total length of 36,829 metres, 41 viaducts and bridges, all of masonry and not a single level crossing. The old station at Prato has been closed and a new one constructed nearby. In addition there are seven stations on the new line. Illustrations will be found on page 726.

The construction of the line involved many difficult engineering problems, the chief of which were encountered in connection with the Apennine tunnel, which was constructed not only from the two ends but by sinking two inclined shafts from the surface about

halfway. These have been retained for ventilation purposes, and at their base the tunnel is widened out to take four tracks so that fast trains can overtake slow trains. Several times during construction the work was interrupted by inflows of water, poisonous gases and by the outbreak of fires due to gases. Details of the work were given in THE RAILWAY GAZETTE of May 22, 1931 (pages 767-770), and some of the advantages of the new line are set forth in our editorial article on page 710 of this issue. The line is double throughout, automatically signalled, and has been electrified on the 3,000 volt d.c. system. Between Florence and Prato the three-phase, 3,700-volt system as used on the old line has been replaced by the 3,000-volt d.c. system. The maximum speed permitted is 75 m.p.h., and the running time of non-stop expresses between Florence and Bologna, a distance of 97.4 km. (60.5 miles), will be reduced to 66 minutes immediately, and to 59 minutes later. This compares with 146 minutes required to negotiate the 131.8 km. (81.9 miles) by the old line. In THE RAILWAY GAZETTE of February 9 we gave some particulars of the widespread accelerations of Italian train services which are due to come into operation on May 15 as a result of the opening of this new line.

### New Station at Florence

An agreement was reached in 1911 between the Italian State Railways and the Florence municipal authorities for the general enlargement and improvement of the railway facilities of that city, and, although little was done until the present regime came into



New direct line and old Bologna-Florence line

office, matters have since advanced far, in anticipation of the opening of the new direct line to Bologna. A great new central station is to be built and already the necessary land has been acquired for the whole station layout, comprising the cleaning and running repair shops, marshalling yard, and accessory shunting lines and buildings. The goods service will be transferred to Florence Porta al Prato station, and only the accelerated and express G.V. goods service will remain at the Central station. The most interesting part of this extensive programme is the construction of a complete temporary station to allow



Entrance at the northern (Bologna) end to the great Apennine tunnel. It will be noticed that the Fascist symbol forms the basis of the pillar design



the demolition of the present station building and the erection on its site of the new station. New arrival and departure platforms have been constructed temporarily and a number of new subways built to provide the

necessary intercommunication between the platforms and with the outside. The various offices are temporarily being housed in the new post office building adjoining the station. A temporary station square has been

arranged, composed of two parts, one for arrival and the other for departure. As to the new station building itself we have dealt with this in an editorial article on page 711 and illustrations appear on page 727.

## RAILWAY AND OTHER MEETINGS

### ENGLISH ELECTRIC CO. LTD.

The annual general meeting of the English Electric Co. Ltd. was held on Tuesday. The Chairman, Mr. G. H. Nelson, in moving the adoption of the report and accounts, said the trading loss for the year was £175,680. After adding the various items to the debit of profit and loss account, and the balance of £9,433 brought forward, there was a debit balance of £277,270 to be carried forward to 1934.

The company's main activity being heavy engineering was of national importance. It employed a high percentage of skilled labour, and, in normal times, there was a large demand for its products. Lack of co-operation among the manufacturers was the only reason why the industry had not received a return upon its invested capital commensurate with the benefits it had conferred upon the country as a whole. The directors believed that the present position could be changed with advantage to the industry and to the users of its products. Insensate competition could not in the long run produce plant of unquestioned reliability and of the highest technical excellence, and the company would continue to make its contribution towards a more rational conduct of the industry.

The future of the company depended on increased turnover arising from a general improvement in trade and on the establishment of a fair and proper price level. The order book at the present time showed a substantial improvement on that of a year ago, but all the benefits of this would not be reflected in the accounts of 1934, since much of the business had only been secured since the end of the year.

Turning to some of the more important orders received in the later months of 1933 and the early part of 1934, which had contributed to the 80 per cent. increase in the value of orders referred to in the report, the Chairman said the contract with the Polish State Railways was the most important, and was the result of a connection with Poland which began more than 10 years ago. The company negotiated the present contract on behalf of the Metropolitan-Vickers Company and itself. The company had received invaluable assistance from the British Overseas Bank, and was also indebted to the Export Credits Department and other Governmental departments for their help and advice.

This contract was for the electrification of the suburban railways around Warsaw, comprising 200 km. of line, and included six sub-stations, 80 motor coach equipments and six locomotives.

A contract had been received from the Southern Railway for 136 motors for suburban lines and 136 motors for high-speed stock. Since interchangeability of stock was a fundamental necessity of railway operations, the railway asked their company to arrange that its motors should be interchangeable with existing motors of Metropolitan Vickers design, and he was glad to say that it had been possible to negotiate an agreement with the Metropolitan Vickers Company to enable this requirement of

the railway to be met. In his judgment the development of co-operation between manufacturers on these lines would do much to encourage further railway electrification in this country.

A further important order had been obtained from the B.B.C. for plant for the Northern Ireland regional transmitter station, this being the sixth regional station the company had equipped with this type of plant.

The company had also received a further order for six water-turbo alternator sets for the Galloway Water Power Company. Substantial orders had been placed by the Blackpool Corporation for the company's latest type of luxury streamlined tramcars, and orders for trolley buses had been received from various parts of the country. Developments in the South African gold-fields had benefited the company, and some large winding equipment had been ordered. The new development of mercury arc rectifiers had

brought additions to the order book. In the latter part of the year an order was obtained from Edward Lloyd's paper mills at Sittingbourne for a 15,000 kW. pass-out steam turbine, which would be the largest so far built in this country.

A diesel-electric railcar had been in satisfactory trial operation on the L.M.S. Railway. Such cars had a definite field of their own, ancillary to full electrification and for working on branch lines. It was hoped that important orders would result. A diesel-electric shunting locomotive had also been completed.

In conclusion, he would like to say that the company was fortunate in the technical qualifications of its engineers and in the spirit which animated its whole organisation, the loyalty of the staff remaining undiminished.

The resolution was agreed to.

### More Comfort in German Thirds



Example of upholstered third class compartment being adopted as standard by the German State Railway (See editorial note on page 708)

## THE MONTH'S RAILWAY LAW

### The Easter Recess

The Courts have had a long term. The Railway and Canal Commission has been sitting frequently of late, but has been occupied in the main with cases relating to the Coal Mines Regulation Acts. This body has just suffered a great loss by the death of the Registrar, Sir Robert McCall, K.C., at the age of 84, who had held office since 1921. The Railway Rates Tribunal has had before it several applications for sanction to special rates for traders, with the result of which we deal below.

### Arbitration Changes

Changes in arbitration law are always a matter of interest to railway companies, whose disputes must often be decided by arbitration rather than by the Court. The new Arbitration Bill, which may shortly become law, contains several excellent amendments founded on the report of a committee which sat under the chairmanship of Mr. Justice Mackinnon some years ago.

The Bill does away with the existing inconvenience caused by the death or bankruptcy of one of the parties. In future this will not discharge the arbitration agreement as has been the case under the Act of 1889. The agreement will now be enforceable by or against the personal representatives of the deceased. Another clause provides that where the reference is to two arbitrators they shall immediately appoint an umpire who may be ordered by the Court to enter on the reference in lieu of the arbitrators as if he were the sole arbitrator. Hitherto the hearing in such cases has often been abortive, because each arbitrator finds in favour of the party who appointed him, and a fresh hearing before an umpire becomes necessary.

### Wagon Shunter as "Odd Lot"

The Workmen's Compensation Act, 1931, amended the Workmen's Compensation Act, 1925, s. 9, sub-s. 4, by substituting a section which provides that if a workman who has so far recovered from the injury as to be fit for employment of a certain kind has failed to obtain employment, the County Court Judge is in certain cases to order this to be treated as total incapacity. These cases are defined as follows:—(1) Where it is probable that the workman would, but for the effects of the injury, have obtained work of the same grade as before in the same class of employment; or (2) where his failure to obtain work is a consequence, wholly or mainly, of the injury. But the workman must have taken all reasonable steps to obtain employment, and the order is to be no longer in force if the workman receives unemployment benefit.

In *Beveridge v. Robert Stephenson & Co. Ltd.* (26 B.W.C.C. 316) a wagon shunter employed in the locomotive

works was injured and the County Court Judge found that his labour was an "odd lot" so as to entitle him to compensation as for total incapacity. He added that the order was to "cease if the workman receives unemployment benefit." The Court of Appeal ordered a new trial because the judge had confused the two cases—the "odd lot" on the one hand, where the employer gives the man special jobs out of compassion or for special reasons, and the case under the amending Act of 1931, where the "total incapacity" depends on other grounds as defined above. The two cases have points of resemblance, no doubt, but they are really distinct and this instance shows that the distinction must be carefully borne in mind.

### Flat Rates for Traders

The Railway Rates Tribunal has now approved thirty-six applications under the Road and Rail Traffic Act, 1933, section 37, for an agreed flat rate for the carriage of goods between the railway companies—and various traders. Opposition was at first offered by the National Federation of Iron and Steel Manufacturers, representing other traders whose business might be detrimentally affected, but the evidence of railway witnesses met the objections on this point. The traders agreed to hand to the railway companies the whole of the traffic coming under the scope of the agreed charge, which was to apply to traffic from one or more forwarding points, either to specified stations or to all stations within a specified area, and in other cases to all stations in Great Britain (including in some cases Jersey and Guernsey).

Mr. Bruce Thomas, K.C., who presided over the Tribunal, alluded in his Judgment to the reduction of late years in traffic going by rail, particularly in that class of traffic which was conveyed by rail but had to be collected and delivered by road, known as "handled traffic." The object of agreed charges was to give the trader a charge which would simplify his accounts and enable him to effect economies in return for undertaking to forward all his traffic by rail for a period. The railways would thus attract additional traffic and secure additional net revenue. This object, it had been shown, could not be secured by the grant of "exceptional rates" under the Railways Act, 1921. In almost all these cases the initiative came from traders. The railway companies had endeavoured to arrange a flat rate representing the true average charge or cost per unit to the trader of transport for a representative period. The Tribunal had satisfied itself as required by the section that the net revenue of the railway company might reasonably be expected to benefit in each case if the agreed charge were sanctioned. The parties had arranged between themselves that the

trader should not as a result of this traffic obligation under the agreement be precluded from forwarding packages of such traffic by the Parcels Post in the usual way. The new procedure as to these agreements has thus opened auspiciously for the companies, and their attitude towards the question in the past appears at least to be justified.

### Personal Luggage

*Piddington v. Co-operative Insurance Society Limited.* (Times, March 28.)

The phrase "personal luggage," which has been frequently the subject of interpretation in railway cases was construed again by Mr. Justice Lawrence in connection with a motor insurance policy. The policy contained a number of exceptions, and among them was a clause that the policy should not cover goods conveyed, other than "personal luggage."

The insured while driving the car knocked down and fatally injured a pedestrian, and the insured claimed an indemnity from the company. The car was a small saloon car, and on the top of it lying lengthwise at the time of the accident were two smooth flat narrow laths, 1½ inches wide and ¾ inches thick. They were twelve to thirteen feet long and were tied in front over the radiator by string to the cross bar and similarly at the back. The claimant was taking them home to repair trellis work in his garden. The laths did not, it should be added, contribute to the accident or affect the driving of the car. The authorities dealing with carriage by rail were of course cited on behalf of the company as showing that the laths were not in the nature of personal luggage, but it was argued on the other side that these did not apply to a motor car policy.

## Forthcoming Events

- Apr. 27 (Fri).—Railway Students' Association (Edinburgh), 7.30 p.m. Annual General Meeting.
- Railway Transport Establishment, at Trocadero Restaurant, Shaftesbury Avenue, London, W.1, 7.30 for 8 p.m. Annual Dinner.
- Apr. 28 (Sat.).—L.N.E.R. (Great Central) Lecture and Debating Society, at Friends Meeting House, Sheffield, 4.30 p.m. "Rolling Stock," by Mr. H. Stopford.
- Stephenson Locomotive Society (Midlands). Visit to Liverpool Overhead Railway.
- Apr. 30 (Mon.).—Railway Students' Association (London), at London School of Economics, Houghton Street, W.C.2, 6 p.m. Annual General Meeting.
- Wimbledon and District Model Railway Club, at Messrs. Miller, Swan & Co., Alt Grove, St. George's Road, London, S.W.19, 8 p.m. "Continental Railways," by Mr. W. A. Willox.
- May 1 (Tues.).—Retired Railway Officers' Society, in Room 300, Great Eastern Hotel, Liverpool Street, London, E.C.2, 2.30 p.m. Ordinary Meeting.
- May 3 (Thurs.).—Permanent Way Institution (Brighton), in Locomotive Mess Room, New England Street, 7 p.m. "Some Notes on Railway Engineering Department Maintenance from the Standpoint of a Permanent Way Inspector," by Mr. B. Tazewell.
- Railway Benevolent Institution, at Connaught Rooms, Great Queen Street, London, W.C.2, 6.45 for 7.15 p.m. Seventy-Sixth Anniversary Festival.

## NOTES AND NEWS

**Guayaquil to Quito Railway.**—According to advices from Ecuador, the Government has cancelled the appointment of a committee to proceed to New York, in order to negotiate the nationalisation of the Guayaquil to Quito Railway Company, as the holders of State bonds have asked by cable that they may send a delegation to Quito in order to carry out the negotiations there.

**G. D. Peters Prospects.**—Lord Inverforth, presiding on April 23 at the general meeting of G. D. Peters & Co. Ltd., manufacturers of rolling-stock equipment, said there was now a distinct improvement in business at home, and conditions ruling prior to the recent trade depression were coming nearer; they had already a volume of work greater than in the corresponding period last year and the board had confidence that the works would soon be busy again.

**Closing Irish Branch Railways.**—The Irish Free State Minister for Industry and Commerce has received application from the Great Southern Railways Company for permission to close certain branch lines. Under the Railways Act of last year the Minister has power to make such order, provided that conditions regarding alternative services are fulfilled. The lines which it is proposed to close are:—Galway-Clifden; Cork-Muskerry; Ballina-Killala; and Westport-Achill.

**Fast Fitted Goods Train, S.R.**—On Monday last the Southern Railway inaugurated a new completely vacuum fitted express goods train from Nine Elms (London) to Exmouth Junction. (Exeter). It starts at 10.15 p.m. and Salisbury is reached at 12.01 midnight, the 82 miles being covered in 106 minutes at an average speed of 46½ m.p.h. After a stop of 25 minutes at Salisbury the 86 miles of heavily graded line thence to Exmouth Junction are covered in 140 minutes. The normal load is 49 wagons and a brake van. After thorough test, it is intended, if this is satisfactory, to reduce the time allowed to Salisbury by a further five minutes, as from July 9, which will bring the average speed up to over 49 m.p.h.

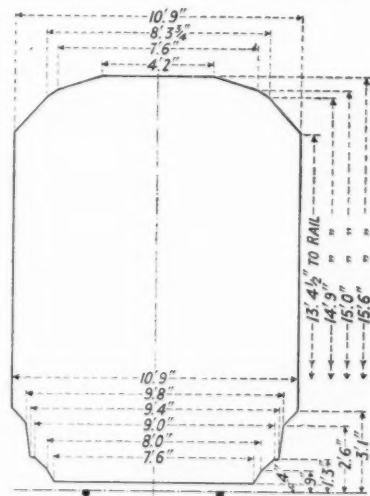
**Hillingdon (Swakeleys) Station.**—The London Passenger Transport Board has recently given consideration to the name of Hillingdon station on the Metropolitan and Piccadilly Lines, suggestions having been made that a more detailed description of the location of the station was desirable. It has, therefore, been decided, after consultation with the Middlesex County Council and the Uxbridge Rural District Council, to supplement the name Hillingdon with the name Swakeleys, which now appears upon the station platforms and will, in future, be used throughout the

system as a supplemental name. Swakeleys is the name of a Tudor mansion, situated within a quarter of a mile from the station, and is well known in the Uxbridge district.

**A Chilean Railway Concession.**—Mr. Andrew McLymont, representing the Valparaíso Electric Company, has presented a petition to the Government asking for the extension, until May 1, 1935, of the concession given in 1921, for the exploitation of a double track electric railway between Valparaíso and Chorrillos, which expires on April 24 of this year.

**New East Prussian Railway.**—A line about 11 miles long, connecting the north-western corner of the Samland coast in East Prussia with the amber mines in Palmnicken, has been added to the building programme of the German State Railway Company. The new line, which connects at Warnicken with the Samland Railway, will also give access to the Brusterort lighthouse. Palmnicken is the only place in the world where amber deposits are found in paying quantities. The annual output is about 500 long tons.

**U.S.A. Standard Loading Gauge.**—At the meetings of the American Railway Engineering Association at Chicago on March 13-14, it was agreed



to adopt the dimensions shown in the accompanying diagram as the limiting equipment for interchange service.

**Southampton Docks Record Traffic.**—Three million packages of South African deciduous fruit have been unloaded at the Southern Railway docks at Southampton during the four months of the present season, December to March. This represents an increase of nearly 50 per cent. on the similar period of last year. An inwards shipping tonnage of nearly 3½ million tons for the first three months of this year

represents an increase of 17 per cent. on the first quarter of 1933. The previous record for the corresponding period was in 1929, when the inwards tonnage stood at 3,027,656 tons.

**Proposed Tube for Algiers.**—The Algiers Municipal Council has adopted a report in favour of the construction of an underground railway in the city, states Reuters. It is estimated that the cost will be approximately £1,000,000, and that an additional £130,000 will be required for rolling-stock.

**Road and Rail Traffic Act, 1933.**—The Secretary to the Ministry of Transport announces that the offices of the Appeal Tribunal under the above Act are at Kings Buildings, Smith Square, Westminster, S.W.1, and communications should be addressed to the Clerk to the Tribunal at that address.

**The Week's Road Accidents.**—The Secretary to the Ministry of Transport issues the following return, for the week ended April 14, of persons killed or injured in road accidents:—

	Killed in accidents reported during the week	Reported during the week as having died as the result of accidents occurring in previous weeks	Injured in accidents reported during the week
England ...	No. 86	No. 19	No. 3,424
Wales ...	3	—	124
Scotland ...	6	3	283
Great Britain	95	22	3,831

The total fatalities of the week as the result of road accidents are therefore 117, as compared with 126 for the preceding week.

**New Shanghai-Peking Express Stock.**—A complete train of 10 vehicles has been constructed in the Woosung workshops of the Nanking-Shanghai Railway for the new Shanghai-Peking through express service via the Nanking-Pukow train ferry. Coach bodies have for many years been built on imported frames and bogies in the Woosung shops for use on the Nanking-Shanghai and Shanghai-Hangchow-Ningpo railways, and the new vehicles, which present a smart appearance, are fully equipped with the latest conveniences for the comfort of the passenger on the long journey to and from the old capital. The coaches consist of first, second and third class stock with first and second class sleeping accommodation and dining, baggage and mail cars. Provision on this train has to be made for the extremely cold weather on the journeys to the north during the winter months and for the extreme summer heat, and special attention has been given to the steam heating arrangements and to the ventilation aided by electric fans: the train has also been made as dust-proof as possible. The first class sleeping car will accommodate 16 persons, each compartment having two berths. The second class sleeper will accommodate



28 passengers in four-berth compartments. There is accommodation for 36 persons in the dining car, in which Chinese and European food is served.

**Railway Summer Services.**—The British railway companies have this year arranged for the summer train service to come into operation on July 9, a week earlier than usual, and continue until September 30, three weeks later than usual.

**The Loch Ness Monster, L.N.E.R.**—The re-appearance of the Loch Ness monster within the last few days has caused the London & North Eastern Railway to alter the itinerary of the Northern Belle cruising trains. A special motor tour of the loch will be made covering the lair of the monster.

**B.A.G.S. and B.A. Western Joint Working.**—The Argentine Government, states Reuters, will favourably examine the demand of the Buenos Ayres Great Southern and Buenos Ayres Western Railway Companies for a unification of their technical administration, without, however, changing their autonomy or concessions from a legal point of view.

**Railway Benevolent Institution.**—The paragraph which we published on page 683 of last week's issue should have stated that the Institution now pays allowances to 3,760 recipients, and the weekly bill, including the maintenance and education of railway servants' children, is £1,400. By the date of the anniversary festival in May next, the Institution hopes that it will be able to announce a substantial list of contributions.

**Southern Railway Bill.**—The Unopposed Bills Committee of the House of Commons reported this Bill to the House on April 19, with amendments. The Bill empowers the company to construct a new railway between Folkestone and Abbotscott, near Dover; to acquire lands for sub-stations for the electrification to Sevenoaks and to Eastbourne and Hastings; and to extend the powers of the West London Extension Railway Company (of which the Southern Railway Company is a part owner) in regard to the purchase, disposal and development of lands. It was

announced that agreement had been reached with the Corporation of Folkestone as to the Folkestone-Dover alternative line, and with other local authorities affected by other matters in the Bill.

**Collision at London Bridge, S.R.**—On April 19 an electric train came into collision with some empty coaches standing at platform No. 20 at London Bridge station. Four persons were slightly injured.

**The 500th Run of the Fastest Steam Train.**—Yesterday the Cheltenham Flyer of the G.W.R., the fastest steam train in the world, made its 500th run from Swindon to Paddington on its present booking of 65 minutes for the 77½ miles.

**Important Polish Contract for Westinghouse Brake Equipment.**—A contract to the value of £4,771,892 has been signed in London between the Polish Government and the Westinghouse Brake & Saxby Signal Co. Ltd., London, for the fitting of Westinghouse continuous air-brake equipment to the freight wagons of the Polish State Railways. Full details of the contract will be found on our Contracts and Tenders page in this issue.

**American Railway Dispute.**—The Federal Transportation Co-ordinator, Mr. Eastman, has withdrawn from his task of mediator in the railway wages dispute. This step is a consequence of the flat rejection by Labour of President Roosevelt's suggestion that the 10 per cent. cut in the men's wages, made two years ago, should be continued until December 31, and the refusal of the employers to consider any settlement more favourable to their employees than that suggested by the President.

**Standard and Exceptional Charges.**—As will be seen from the legal notice published on page 741, the Railway Rates Tribunal will sit at 10.30 a.m. on Tuesday, June 5, to review the standard and exceptional charges of each of the amalgamated companies. The accounts and statements relative to such review, lodged with the Tribunal by the companies, may be inspected at the office of the Registrar, 2, Clement's Inn, W.C.2. Notices of objection or submission must be filed with the Registrar on or before Wednesday, May 23.

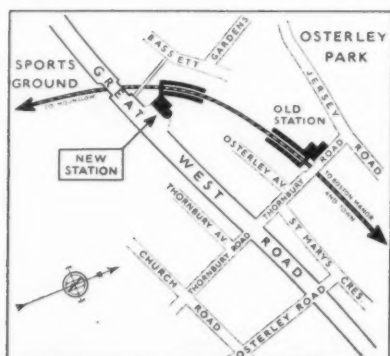
**Seaside Holidays at Home.**—A new holiday scheme for Londoners has been evolved by the L.N.E.R. The Eastern Belle Pullman express, which ran to a different resort daily last summer carrying day excursionists at fares of 6s. 6d. or 7s. 6d., will run to a similar schedule this summer but season tickets available for the five days Monday to Friday inclusive will be issued every week at a cost of 25s. third class or 37s. 6d. first class, including Pullman car supplements. Londoners may thus spend their nights and week-ends in their own homes and their days by the sea at a different

resort each day. The first trip will be made on Sunday, May 27, to Clacton-on-Sea, but the season ticket period starts on Monday, the 28th.

**L.N.E.R. Holiday Season Tickets.**—Commencing on May 1, L.N.E.R. weekly holiday season tickets, each covering all stations within a certain area, will be issued in 31 different districts between Clacton and the Western Highlands. These tickets, which are available for travel by all trains during seven consecutive days, will be issued at all the principal stations, the cost in most districts being 10s. third class and 15s. first class. Corresponding tickets for dogs and bicycles will be issued, the rate being 2s. 6d. or 5s. according to district.

**Dorman Long, Change of Address.**—Consequent on the transfer of the executive control of Dorman Long & Co. from London to Middlesbrough, the following departmental changes of address are officially announced:—As from Monday, April 30, the London office will be at Terminal House, 52, Grosvenor Gardens, S.W.1. The London constructional department will function at Cringle Street, Nine Elms Lane, S.W.8. As from April 20, the commercial and drawing office of the bridge department is located in Middlesbrough. The new address is Dorman Long & Co., Bridge Department, Dock Street, Middlesbrough.

**Agreed Charges.**—The Railway Rates Tribunal approved on April 24 the application for an agreed charge between the four amalgamated railway companies, the London Passenger Transport Board, and the Mersey Railway Company, on the one hand, and F. W. Woolworth & Co. Ltd. on the other. The application was heard on March 14, 15, 16, 20, 21 and 22, when judgment was reserved. The charge was for the carriage of merchandise sent for sale or use at Woolworth stores for the period February 1 to December 31, 1934. The agreed charge was a payment of £4 5s. per cent. of the purchase price paid by Woolworths for the goods to which the charge was applicable. Among the goods not included in the arrangement were customers' purchases, ice-cream, mineral waters, local purchases, and soft fruit. It was estimated that with the agreed charge in operation the railway gross receipts from Woolworth's traffic in 1934 would be some 63 per cent. above the gross receipts from that traffic in 1930, without material additional expense from the additional traffic. Numerous objections to the agreed charge were heard, but these were over-ruled by the Court, which was of opinion that it would give an increase to the net revenue of the railway companies which could not have been obtained by the grant of exceptional rates. The Court was also of opinion that any possible detrimental effect on the business of other traders was not likely to be great enough to justify withholding approval of the charge, and that any such detrimental effect would be capable of correction under the



Sketch map showing sites of old and new stations at Osterley. Illustrations appear on page 730

procedure provided by the Act. It was decided that complete lists of all agreed charges should be kept at 12 centres, each centre serving a radius of about 100 miles. These centres are: London; the Railway Clearing House; Exeter; Southampton; Cardiff; Birmingham; Leicester; Manchester; Leeds; York; Glasgow; Edinburgh; Aberdeen.

**L.M.S.R. Rolling Stock "Fashion Parade."**—On Monday last an exhibition of the latest types of L.M.S.R. locomotives and coaches was held at Euston station, and the railway company claimed that it was thus holding the first railway "Fashion Parade." The train exhibited was made up of the latest products, or should we say "models," from the company's works at Crewe, Derby, and Wolverton. These provide luxurious first and third class accommodation for both day and night travel, for either individuals or parties. The outstanding improvements in the passenger stock include arm-rests in the third class corridor coaches which now seat three

a side instead of four; heating and ventilation improved on scientific lines and rendered more controllable by the individual passenger; electric lighting re-planned to give greater eye-comfort when reading; and night travel made quieter by anti-noise insulation of the sleeping-car floors. Original schemes of interior decoration, striking yet harmonious, are also evident throughout. The exhibition train was made up as follows:—New 2-6-4 tank locomotive No. 2500 (see THE RAILWAY GAZETTE for March 30 last), new 4-6-0 5X-class express passenger locomotive No. 5552 (see page 728 herein), first class lounge brake coach, first class sleeping car, first class party saloon, corridor composite coach, first class vestibule coach, electric kitchen car, third class sleeper, and third class corridor brake coach. These new locomotives and improved types of rolling stock are being brought into service in connection with the many additional and accelerated train services which are to be introduced by the L.M.S.R. this summer.

### British and Irish Railway Traffic Returns

GREAT BRITAIN	Totals for 16th Week			Totals to Date		
	1934	1933	Inc. or Dec.	1934	1933	Inc. or Dec.
L.M.S.R. (6,940 mls.)						
Passenger-train traffic...	406,000	449,000	- 43,000	6,235,000	6,211,000	+ 24,000
Merchandise, &c. ...	485,000	373,000	+ 112,000	7,064,000	6,341,000	+ 723,000
Coal and coke ...	247,000	152,000	+ 95,000	4,200,000	3,918,000	+ 282,000
Goods-train traffic ...	732,000	525,000	+ 207,000	11,264,000	10,259,000	+ 1,005,000
Total receipts ...	1,138,000	974,000	+ 164,000	17,499,000	16,470,000	+ 1,029,000
L.N.E.R. (6,339 mls.)						
Passenger-train traffic...	266,000	300,000	- 34,000	4,062,000	4,050,000	+ 12,000
Merchandise, &c. ...	324,000	281,000	+ 43,000	5,027,000	4,403,000	+ 624,000
Coal and coke ...	245,000	172,000	+ 73,000	3,947,000	3,535,000	+ 412,000
Goods-train traffic ...	569,000	453,000	+ 116,000	8,974,000	7,938,000	+ 1,036,000
Total receipts ...	835,000	753,000	+ 82,000	13,036,000	11,988,000	+ 1,048,000
G.W.R. (3,750 mls.)						
Passenger-train traffic...	177,000	203,000	- 26,000	2,617,000	2,638,000	- 21,000
Merchandise, &c. ...	192,000	138,000	+ 54,000	2,816,000	2,521,000	+ 295,000
Coal and coke ...	103,000	59,000	+ 44,000	1,734,000	1,665,000	+ 69,000
Goods-train traffic ...	295,000	197,000	+ 98,000	4,550,000	4,186,000	+ 364,000
Total receipts ...	472,000	400,000	+ 72,000	7,167,000	6,824,000	+ 343,000
S.R. (2,177 mls.)						
Passenger-train traffic...	252,000	289,000	- 37,000	3,915,000	3,885,000	+ 30,000
Merchandise, &c. ...	65,500	55,000	+ 10,500	958,500	913,500	+ 45,000
Coal and coke ...	31,500	20,000	+ 11,500	566,500	522,500	+ 44,000
Goods-train traffic ...	97,000	75,000	+ 22,000	1,525,000	1,436,000	+ 89,000
Total receipts ...	349,000	364,000	- 15,000	5,440,000	5,321,000	+ 119,000
Liverpool Overhead ...	1,105	1,167	- 62	17,243	16,744	+ 499
Mersey (4½ mls.) ...	3,852	4,275	- 423	67,372	64,083	+ 3,289
*London Passenger Transport Board ...	532,800	—	—	21,032,700	—	—
IRELAND						
Belfast & C.D. pass. (80 mls.)	1,850	3,933	- 2,083	29,534	29,977	- 443
" " goods	550	330	+ 220	8,623	8,161	+ 462
" " total	2,400	4,263	- 1,863	38,157	38,138	+ 19
Great Northern (562 mls.) pass.	6,800	8,300	- 1,500	120,450	56,200	+ 64,250
" " goods	8,800	6,850	+ 1,950	131,050	54,300	+ 76,750
" " total	15,600	15,150	+ 450	251,500	110,500	+ 141,000
Great Southern (2,158 mls.) pass.	18,676	26,001	- 7,325	307,324	297,329	+ 9,995
" " goods	35,288	28,914	+ 6,374	512,984	492,459	+ 20,525
" " total	53,964	54,915	- 951	820,308	789,788	+ 30,520

Easter Monday, 1933.

\* 42nd Week.

### British and Irish Railway Stocks and Shares

Stocks	Highest 1933	Lowest 1933	Prices	
			Apl. 25 1934	Rise/Fall
G.W.R.				
Cons. Ord. ...	551½	31	58	—
5% Con. Prefce. ...	109½	69½	110½	—
5% Red. Pref. (1950) ...	109½	87½	109½	—
4% Deb. ...	108½	99½	108½	—
4½% Deb. ...	108	100½	110½	—
4½% Deb. ...	116	106	117½	—
5% Deb. ...	128	117½	128½	—
2½% Deb. ...	65	60	69½	—
5% Rt. Charge ...	124	111½	126½	—
5% Cons. Guar. ...	122	103	123½	—
L.M.S.R.				
Ord. ...	297½	121½	27	—
4% Prefce. (1923) ...	51	17	56½	-1½
4% Prefce. ...	72	33½	78½	-1½
5% Red. Prf. (1955) ...	93	47½	99	—
4% Deb. ...	103½	89½	103	—
5% Red. Deb. (1952) ...	114	105	113½	—
4% Guar. ...	97½	68½	98½	—
L.N.E.R.				
5% Pref. Ord. ...	22½	7½	195½	-1½
Def. Ord. ...	10½	4½	10	—
4% First Prefce. ...	65½	19½	66½	-1½
4% Second Prefce. ...	40½	12½	39	—
5% Red. Pref. (1955) ...	83½	27	87	—
4% First Guar. ...	94½	58½	96	+1½
4% Second Guar. ...	89½	48	90	—
3% Deb. ...	77	60½	78½	—
4% Deb. ...	102½	80	102½	—
4% Deb. ...	112	102½	108½	—
5% Red. Deb. (1947) ...	107½	98½	106½	—
4½% Sinking Fund Red. Deb.				
SOUTHERN				
Pref. Ord. ...	71	27½	79	—
Def. Ord. ...	24½	9½	27½	-1½
5% Prefce. ...	107½	74	110½	—
5% Red. Pref. (1964) ...	107½	78½	111½	—
5% Guar. Prefce. ...	124½	102½	124½	—
5% Red. Guar. Pref. (1957) ...	115½	103½	114½	—
4% Deb. ...	107½	96½	105½	—
5% Deb. ...	126½	114½	126½	—
4% Red. Deb. 1962-67	107½	100	106½	—
BELFAST & C.D.				
Ord. ...	6	4	5	—
FORTH BRIDGE				
4% Deb. ...	99½	95½	101½	—
4% Guar. ...	98½	94	101½	—
G. NORTHERN (IRELAND)				
Ord. ...	71½	31½	5	—
G. SOUTHERN (IRELAND)				
Ord. ...	28	16	20	—
Prefce. ...	24	12½	15	-4
Guar. ...	42	16½	43	-3½
Deb. ...	60	30½	65	+1½
L.P.T.B.				
4½% "A" ...	117½	112	118½	—
5% "A" ...	127½	119½	128	—
4½% "T.F.A." ...	111½	106	109½	—
5% "B" ...	122½	114	120½	—
5% "C" ...	86½	74½	79½	—
MERSEY				
Ord. ...	16½	5	13	—
4% Perp. Deb. ...	83	63½	87½	—
3% Perp. Deb. ...	62	51	65½	—
3% Perp. Prefce. ...	50½	27	53½	—

\* ex-dividend.

## CONTRACTS AND TENDERS

### Important British Contract for Polish Brake Equipment

A contract to the value of £4,771,892 was signed in London on Tuesday night between the Polish Government and the Westinghouse Brake & Saxby Signal Co. Ltd., London, for the fitting of the freight wagons of the Polish State Railways with Westinghouse continuous air brakes. The work covered by the contract includes the supply of Westinghouse brake equipment for 39,000 wagons and pipe equipment for a further 73,000 wagons. The supply period will extend over six years and will provide a large amount of employment in England. The work will involve the purchase by the Westinghouse Brake & Saxby Signal Co. Ltd. of over 20,000 tons of steel and iron. The Westinghouse Company has been active in Poland in securing the interest of the Poles in the Westinghouse brake system, and the negotiations for this contract have been carried through with remarkable speed. The Polish delegation was headed by M. Koc, Under-Secretary of State to the Ministry of Finance, and M. Piasecki, Under-Secretary of State to the Ministry of Communications. That the financial problems in connection with the contract have been satisfactorily solved is due largely to the untiring efforts and expert knowledge of the committee and the officers of the Export Credits Guarantee Department of the Board of Trade.

Maschinenfabriek Gebr. Stork & Co. N.V., Hengelo, Holland, has received an order from the Netherlands Railways for seven Stork-Ganz 150-b.h.p., six-cylinder diesel engines to run at 1,300 r.p.m. for fitting into railcars at present running with petrol engines. This order is additional to that already in hand by the same firm for the Netherlands Railways for twenty 400-b.h.p. at 1,450 r.p.m. Stork-Ganz diesel engines for diesel-electric trains.

Leyland Motors Limited has received an order from the Great Southern Railways of Ireland for 12 Leyland Badger road vehicles.

The South African Railways & Harbours Administration has recently placed orders for permanent way equipment as follow :—

Barrow Hematite Steel Co. Ltd.: Fishplates (Contract B 5948). Price, £739 14s.  
Guest Ken & Nettlefolds Limited: Gauge clips (Contract B 5876 1). Price £13,039 10s. and bolts and nuts for steel sleepers (Contract B 5876 2). Price, £24,453 18s.

Henry Williams (India) (1931) Limited has secured an order from the Indian Stores Department, New Delhi, for a total of 103,000 fishbolts and fang bolts and nuts at a total price of approximately Rs. 28,554.

Ransomes & Rapier Limited, through the Trade Commissioner for Mysore, London, has secured orders from the Government of Mysore for one electric-

ally operated jib crane for handling six-ton wagons on metre gauge track, with slings and plug boxes at total price of £1,264.

Shaw Wallace & Co. has secured an order from the Indian Stores Department, New Delhi, for a total of 103,000 fishbolts and fang bolts and nuts at a total price of approximately Rs. 24,577.

The Associated Electrical Industries (India) Limited has secured orders from the Indian Stores Department, New Delhi, as follow: Two Froelich rail brakes for 5 ft. 6 in. gauge track at a price of Rs. 93,600, one reserve pump at a price of Rs. 6,085, one point control table complete at price of Rs. 24,807, two desk type telephones and battery at price of Rs. 85 and spares for two years' normal working of whole equipment at Rs. 3,573.

The Birmingham Railway Carriage & Wagon Co. Ltd. has received an order from the Crown Agents for the Colonies for forty 12-ton wagons for the Palestine Railways.

Craven Bros. (Manchester) Ltd. has received orders for one motor-driven

duplex horizontal slot Hydromill and one motor-driven 48-in. carriage and wagon wheel lathe from the Buenos Ayres Western Railway.

Dean Smith & Grace Limited has secured an order from the Buenos Ayres Great Southern Railway for one N type lathe and three tool room lathes.

James Archdale & Co. Ltd. has received an order for one motor-driven 38-in. radius sensitive radial drilling machine from the Buenos Ayres Western Railway.

The Churchill Machine Tool Co. Ltd. has received an order for one motor-driven double spindle vertical hole grinding machine from the Buenos Ayres Western Railway.

Burn & Co. has secured orders from the Stores Purchase Committee, Government of Mysore, for 18 sets of switches and crossings for metre gauge, 8 sets for 2 ft. 6 in. gauge and 4-11 tons steel rail.

The Chairman of the Tender Board, Office of the High Commissioner for the Union of South Africa, invites tenders, receivable by April 30, for a quantity of steel castings for railway wagons and, receivable on May 3, for a total of 211 crossings and details, stocks and checks, stocks and switches, and single and double slips.

### Richard Trevithick

Exactly a year ago the engineering world honoured the memory of Richard Trevithick, the pioneer of high-pressure steam, on the occasion of the centenary of his death on April 22, 1833. The Trevithick Centenary Commemoration Committee, which was responsible for the arrangements, then proceeded to its remaining tasks of having monuments and tablets erected and preparing a memorial volume.

On Thursday of last week, April 19, a monument, erected by this committee in conjunction with the Merthyr Corporation, was unveiled at Merthyr Tydfil by Mr. David E. Roberts of Cardiff, a Past President of the South Wales Institute of Engineers, as shown in the illustration on page 730. Headed by the Mayor, Alderman B. J. Williams, members of the corporation, and the memorial committee, a procession marched from the Town Hall to the site of the memorial near the old Penydarren Ironworks, where Trevithick served as an engineer for some time. The tramway track over which his famous locomotive made the 9-mile journey to Abercynon on February 21, 1804, crossed the site upon which the memorial stands.

In London on Monday last, Mr. Oliver Stanley, the Minister of Transport, unveiled at University College a tablet to commemorate Trevithick's locomotive experiments in 1808 on a circular track near Euston Road.

The tablet has been fixed to the outside wall of the civil and mechanical

engineering laboratories, and can be read from the pavement in Gower Street. It bears the inscription: "Close to this place Richard Trevithick, born 1771, died 1833, pioneer of high steam pressure, ran in the year 1808 the first steam locomotive to draw passengers."

The memorial volume,\* recently published, is a well-balanced account of the life of a famous pioneer engineer, in which effort has been made to avoid the extravagant claims and fulsomeness so often encountered in such a book. The present authors have been interested, one of them for over half a century, in the life of the great engineer, and in anticipation of the event they had prepared much material for the biography. They deserve congratulation for the thoroughness and care with which they have conducted their researches. Wisely they allow much of the story to be told in contemporary letters, including many written by Trevithick himself. Hitherto unpublished material has been garnered and Trevithick's life story is now presented succinctly, fully documented, with appendices and bibliography. A well-known firm of engineers, as its contribution to the Commemoration, undertook to defray the expenses of production, and this has enabled the volume to be published at the low price of 10s. 6d.

\* Richard Trevithick: The Engineer and the Man. By H. W. Dickinson and Arthur Tiley. Cambridge University Press. 9½ x 6 in. 290 pp. Price 10s. 6d. net.



## LEGAL AND OFFICIAL NOTICES

IN THE COURT OF THE RAILWAY  
RATES TRIBUNAL.

## Railways Act, 1921.

1934 REVIEW OF STANDARD CHARGES  
AND EXCEPTIONAL CHARGES.

NOTICE IS HEREBY GIVEN that the Railway Rates Tribunal will sit at 10.30 a.m. on Tuesday, 5th June, 1934, in Court "A," Judges' Quadrangle, Royal Courts of Justice, London, W.C.2, to review the Standard Charges and Exceptional Charges of each of the Amalgamated Companies pursuant to the provisions of Section 59 of the Railways Act, 1921.

NOTICE IS FURTHER GIVEN that the Accounts and Statements relative to such Review lodged with the Tribunal by the said Amalgamated Companies may be inspected at the Office of the Registrar, 2, Clement's Inn, London, W.C.2, at any time during office hours. Copies of the Statements lodged by each of the four Amalgamated Companies (price 7s. 6d. each, or £1 10s. per set, post free) may be obtained, on prepayment, from Mr. G. Cole Deacon, 35, Parliament Street, Westminster, S.W.1.

Any body or person desiring to make any Objection or Submission relative to the Review must file a Notice of their or his Objection or Submission with the Registrar of the Court

on or before Wednesday, 23rd May, 1934. A separate Notice must be filed in relation to each Amalgamated Company.

Each Notice must be on foolscap size paper and must state concisely the ground or grounds of such Objection or Submission, and must be stamped with an adhesive fee stamp for 2s. 6d. (which can be purchased at the office of the Tribunal only). If sent by post each Notice must be accompanied by a Postal Order for 2s. 6d. payable to the Railway Rates Tribunal, when a stamp will be affixed at the office. Five additional copies of each Notice must be lodged with the original at the office of the Registrar.

Only the Amalgamated Companies and any body or person filing such Notice of Objection or Submission as aforesaid will be entitled to apply to be heard on the Review.

Dated this 20th day of April, 1934.

T. J. D. ATKINSON,  
Registrar.

**PATENTS** for Inventions, Trade Marks, Advice, Handbook, and consultations free. King's Patent Agency, Ltd. (B. T. King, C.I.M.E., Registered Patent Agent, G.B., U.S., and Canada), 146A, Queen Victoria Street, London, E.C.4. 49 years' references. Phone City 6161.

## Rio Tinto Co. Ltd.

## DIVIDEND ON SHARES TO BEARER.

**HOLDERS OF SHARE WARRANTS TO BEARER** are informed that they will receive PAYMENT of the DIVIDEND declared at the General Meeting held on the 19th inst., at the rate of Two Shillings and Sixpence per Share on the Preference Shares less Income Tax, on and after Tuesday, the 1st May, 1934, on presentation of Coupon No. 74 on the Preference Shares, either at the Company's Office in London, or at the Société Générale, 29, Boulevard Haussmann, Paris.

Coupons for payment in London must be left four clear days previously for examination, and may be deposited on or after the 23rd inst.

By Order,

R. H. BEECHER,

Secretary.

Offices of the Company:  
3, Lombard Street, E.C.3.  
19th April, 1934.

**OFFICIAL ADVERTISEMENTS** intended for insertion on this page should be sent in as early in the week as possible. The latest time for receiving official advertisements for this page for the current week's issue is noon on Thursday. All advertisements should be addressed to:—*The Railway Gazette*, 33, Tothill Street, Westminster, London, S.W.1.

## RAILWAY AND OTHER REPORTS

**San Paulo (Brazilian) Railway**—The board recommends a dividend on the ordinary stock of 2 per cent., making, with the interim of 2 per cent. paid in October, 4 per cent. for 1933, free of tax. For 1932 the ordinary stock received no dividend, the 1931 payment being 7 per cent.

**International Railways of Central America**—Total operating revenues for 1933 amounted to \$3,914,751, a decrease of \$488,613, or 11.1 per cent. compared with 1932. Total operating income was \$1,385,389 (against \$1,862,539) and the gross income \$1,585,135 (against \$2,071,164). After deducting interest charges, &c., the net income was \$14,224 (against \$459,479). After applying \$161,712 (against \$144,884) to sinking fund there is a deficit of \$147,487 (against a credit balance of \$314,595) transferred to profit and loss account. The credit balance brought forward was \$9,039,596, and with miscellaneous receipts, the total credit balance is \$9,351,192. After making miscellaneous appropriations, amounting in all to \$1,216,166, there was a credit balance of \$7,987,539 at December 31 last.

**Rhodesia Railways Trust**—The accounts of the Rhodesia Railways Trust, which is controlled by the British South Africa Company and owns almost the whole of the capital of Rhodesia Railways and the Mashonaland Railway Company, show a profit of £51,726 (against £21,532 for the preceding accounting period of six months). To this is added £117,587 taken from reserve for depreciation of investments, being no longer required for that purpose. It is proposed to pay a dividend of 5 per cent., tax free (against 2½ per cent., tax free, for six months), and the balance

forward is increased from £204,607 to £273,631. For the year ended September 30 last the Rhodesia Railways had a net loss, after providing £628,254 for debenture interest, of £244,471, compared with a net loss of £421,898 for the previous year. The Mashonaland Railway Company also made a net loss for the year, after providing £469,503 for debenture interest, of £308,957, compared with a net loss of £526,225 for the previous year. Taking the two railway companies together, after meeting all charges, including debenture interest £1,097,758, and providing £518,551 for depreciation of the system and its equipment and setting aside £87,031 for pension funds, there was a loss on net revenue account of £553,428, compared with a loss of £948,123 for the previous year. The approximate working results of the two railway companies together for the four months ended January 31, 1934, show a surplus of gross revenue over working expenditure of £280,569, which compares with a surplus of £17,676 during the corresponding four months of 1932-33.

**Birmingham & Midland Motor Omnibus Co. Ltd.**—This company, which is jointly controlled by the London Midland & Scottish and the Great Western Railway Companies and by the British Electric Traction Co. Ltd., had, in 1933, net traffic and other receipts of £509,462, and received £11,175 in interest and dividends, making a total of £520,637. After deducting administration and general expenses, &c., and adding £56,575 brought forward, there is a balance of £264,755, out of which it is proposed to apply £50,000 to reserve, £5,000 to employees' assistance fund, £8,000 to dividend of 8 per cent. for the year on

the cumulative preference shares, £100,000 to dividend of 10 per cent. for the year on the ordinary shares, and £50,000 to bonus of 5 per cent. on the ordinary shares, carrying forward £51,755. The nominal capital of the company has been increased from £950,000 to £1,150,000 by the creation of 200,000 new ordinary shares of £1 each. During the year, £200,000 of the amount standing to reserve was capitalised and distributed to the ordinary shareholders in fully-paid ordinary shares. As was indicated in our Railways and Road Transport Section of April 13, at p. 633, the G.W.R. holding in ordinary shares is increased from £160,000 to £200,000, and the L.M.S.R. holding from £240,000 to £300,000.

**City of Oxford Motor Services Limited**—For the year 1933 this company, which is jointly controlled by the Great Western Railway Company and the British Electric Traction Co. Ltd., had a profit, after writing off depreciation on rolling stock, plant, furniture, &c., of £32,587. After deducting therefrom debenture interest, amount transferred to sinking fund for redemption of debentures, and other items, there remains a balance of £22,366. After adding £4,024 brought forward, there is a total of £26,390, of which £1,181 is applied in writing off purchase price of the Oxford & District Tramways undertaking, £1,000 in writing off purchase of businesses, and £4,810 to dividend on preference shares. A dividend of 10 per cent. for the year on the ordinary shares will absorb £14,175, leaving £5,224 to be carried forward.

**Murex Limited**—The directors have declared an interim dividend of 15 per cent. on 373,034 ordinary shares (against 10 per cent.) and of 11½ per cent. on 76,966 new ordinary shares on account of profits of the current year, payable on May 8.

### Railway Share Market

The stock and share markets have developed renewed activity on prospects of the rising volume of trade being reflected in increased dividends by the industrial companies. During the week there have been several reports of companies showing a big recovery in profits. This evidence of increased trade has not so far been reflected in the Home railway market, where it might be expected to show itself in a larger demand for home railway stocks.

Traffic prospects of the companies are considered in the Stock Exchange to be satisfactory, but Stock Exchange brokers find that clients are showing some hesitation in adding to their holdings of railway stocks whilst the question of wages discussion is in the forefront. The hope is expressed in the Stock Exchange that the question will be settled as speedily as possible, as it is thought there would be a very good prospect of stocks of the company recovering to a level more in

line with the higher values now being quoted for industrial companies' stocks, whose prospects are not superior to those of the junior stocks of home railway companies. When reduced to the basis of £1 units, such stocks as the L.M.S. 1923 preference and ordinary, N.N.E. 2nd preference and preferred ordinary, and Southern deferred are considered to be much under-valued in relation to the £1 units of ordinary stocks of many leading industrial companies. One example of this inconsistent valuation is Imperial Chemical Industries deferred shares, which stand at 19s. per £1 unit and only yield 1 per cent. in dividend for the past year, whereas Southern preferred ordinary stand at only 18s. per £1 unit and paid 3 per cent. in dividend. The prospect of Southern Railway recovering its former net revenue is regarded as equally, if not more, promising. In the foreign railway market there has been a restricted amount of business. The Exchange situation in South American countries continues to

act as an adverse influence on the market. Argentine railway stocks were largely neglected, although further advance was recorded in Bahia Blanca and North Western second debenture stock to the highest level of the year. This stock is guaranteed as to dividend by the Buenos Ayres Great Southern Railway and gives a yield of 5½ per cent. at the present price.

The declaration of a final dividend of 2 per cent. on San Paulo ordinary stock, making 4 per cent. free of tax for the past year, created a favourable impression, as it compares with nil a year ago. On the basis of this distribution the stock gives a yield of 5 per cent. free of tax, which is regarded as a high return, notwithstanding the uncertainties of the Brazilian situation. Nitrate Railway shares were again in request on reported improvement in the Chilean nitrate outlook. Canadian Pacific shares showed no important change, despite the attention drawn to the brighter traffic prospects.

Traffic Table of Overseas and Foreign Railways Publishing Weekly Returns

Railways	Miles open 1933-34	Week Ending	Traffic for Week		No. of Week	Aggregate Traffic to Date			Shares or Stock	Prices				
			Total this year	Inc. or Dec. compared with 1933		Totals		Increase or Decrease		Highest 1933	Lowest 1933	Apr. 25, 1934	Yield % (See Note)	
						This Year	Last Year							
South & Central America.														
Antofagasta (Chili) & Bolivia	830	22.4.34	14,380	+ 3,240	16	209,300	149,170	+ 60,130	Ord. Stk.	26	113½	25	Nil	
Argentine North Eastern	753	21.4.34	13,000	+ 2,900	42	431,100	448,600	- 17,500	"	141½	5	81½	Nil	
Argentine Transandine	111	—	—	—	—	—	—	—	A. Deb.	55	40	50	8	
Bolivar	170	Mar., 1934	7,700	- 950	13	20,650	23,850	- 3,200	6 p.c. Db.	10	5	10	Nil	
Brazil	—	—	—	—	—	—	—	—	Bonds	15	11	13	3½	
Buenos Ayres & Pacific	2,806	21.4.34	145,000	+ 10,000	42	4,566,000	4,630,000	- 64,000	Ord. Stk.	26	10	10	13½	
Buenos Ayres Central	190	15.4.34	593,750	+ \$11,850	42	\$4,500,703	\$4,331,639	+ \$169,064	Mt. Db.	30	10	23	Nil	
Buenos Ayres Gt. Southern	5,085	21.4.34	214,000	- 18,000	42	8,545,000	8,558,000	- 13,000	Ord. Stk.	441½	212½	29	Nil	
Buenos Ayres Western	1,926	21.4.34	90,000	+ 20,000	42	2,825,000	2,832,000	- 7,000	"	341½	153½	22½	Nil	
Central Argentine	3,700	21.4.34	1184,000	+ 14,000	42	6,974,000	7,619,000	- 645,000	"	281½	15	18	Nil	
Do.	—	—	—	—	—	—	—	—	Dfd.	18	10	12½	Nil	
Cent. Uruguay of M. Video	273	21.4.34	14,001	+ 172	42	689,956	637,621	+ 52,335	Ord. Stk.	20	8	15	Nil	
Do. Eastern Extn.	311	21.4.34	3,147	+ 103	42	140,022	137,929	+ 2,093	"	—	—	—	—	
Do. Northern Extn.	185	21.4.34	2,284	+ 480	42	78,235	81,440	- 3,205	"	—	—	—	—	
Do. Western Extn.	211	21.4.34	968	- 121	42	68,175	56,742	+ 11,433	"	—	—	—	—	
Cordoba Central	1,218	21.4.34	37,000	+ 3,000	42	1,714,000	1,689,000	+ 25,000	Ord. Inc.	91½	21½	5	Nil	
Costa Rica	188	Feb., 1934	16,729	- 1,400	35	145,713	157,900	- 12,187	1 Mt. Db.	29	20	26½	7½	
Dorada	70	Mar., 1934	9,500	+ 3,500	13	31,500	19,600	+ 11,900	Ord. Sh.	761½	683½	95	68½	
Entre Rios	810	21.4.34	13,800	+ 1,300	42	650,200	630,400	+ 19,800	Ord. Stk.	261½	9	17½	Nil	
Great Western of Brazil	1,082	21.4.34	6,300	- 500	16	151,200	208,800	- 57,600	Ord. Sh.	23½	12	34	Nil	
International of Cl. Amer.	794	Feb., 1934	\$509,640	+ \$74,295	8	\$970,373	\$865,255	+ \$105,118	—	—	—	—	—	
Interoceanic of Mexico	223½	Mar., 1934	3,700	- 4,425	13	11,280	21,365	- 10,085	1st Pref.	12	116	102	Nil	
La Guaira & Caracas	1,918	21.4.34	16,965	- 1,357	16	364,852	392,369	- 27,517	Stk.	16	10	10½	Nil	
Leopoldina	483	21.4.34	\$248,800	+ \$60,300	16	\$3,625,100	\$2,970,700	+ \$654,400	Ord. Stk.	201½	10	11	Nil	
Mexican	319	Mar., 1934	9,523	+ 409	39	87,516	77,061	+ 10,455	Ord. Stk.	2	1	1½	Nil	
Midland of Uruguay	411	15.4.34	12,324	+ 8,172	15	98,616	29,911	+ 68,705	Ord. Sh.	78 6	11½	31½	Nil	
Nitrate	274	21.4.34	4,750	+ 1,460	42	137,450	114,700	+ 22,750	Pr. Li. Stk.	72	49½	71	87½	
Paraguay Central	1,059	Mar., 1934	66,877	+ 22,000	39	506,929	485,536	+ 21,393	Pref.	153½	5	13½	Nil	
Peruvian Corporation	100	14.4.34	2,086	- 306	42	60,450	120,242	- 59,792	Pr. Li. Db.	70	66½	70	7½	
Salvador	153½	8.4.34	32,240	- 12,288	14	408,025	434,309	- 26,284	Ord. Stk.	102	68	81	27½	
San Paulo	164	Mar., 1934	10,565	+ 4,795	39	56,780	33,985	+ 22,795	Ord. Sh.	154	54	154½	51½	
Taltal	1,365	21.4.34	31,711	+ 11,866	42	813,831	819,584	- 5,753	Ord. Stk.	8	2	5	Nil	
United of Havana	73	Mar., 1934	1,155	+ 92	39	10,546	13,693	- 3,147	Deb. Stk.	6	3½	5	Nil	
Uruguay Northern	—	—	—	—	—	—	—	—	—	—	—	—	—	
Canada.														
Canadian National	23,750	14.4.34	614,804	+ 114,362	15	8,745,967	7,122,663	+ 1,623,304	—	601½	38	68	5½	
Canadian Northern	—	—	—	—	—	—	—	- 4 p.c.	Perp. Dbs.	995½	85	100½	4	
Grand Trunk	—	—	—	—	—	—	—	—	4 p.c. Gar.	221½	11	16	Nil	
Canadian Pacific	17,018	21.4.34	438,200	+ 71,400	16	6,803,200	5,801,800	+ 1,001,400	Ord. Stk.	—	—	—	—	
India.														
Assam Bengal	1,329	24.3.34	30,540	+ 7,561	51	1,257,641	1,235,788	+ 21,853	Ord. Stk.	79	70	77½	3½	
Barsi Light	202	31.3.34	3,487	- 1,465	52	148,957	145,127	+ 3,830	Ord. Sh.	101½	70	101½	51½	
Bengal & North Western	2,113	31.3.34	58,817	+ 8,936	31	1,234,876	1,262,523	- 27,653	Ord. Stk.	292	240	276	51½	
Bengal Doars & Extension	161	31.3.34	2,119	+ 446	52	150,192	146,106	+ 4,086	"	127	119	125	5½	
Bengal-Nagpur	3,269	17.3.34	105,900	- 282	50	5,411,505	4,959,031	+ 452,474	"	971½	831½	101½	31½	
Bombay, Baroda & Cl. India	3,089	14.4.34	163,575	+ 1,500	2	333,675	330,150	+ 3,525	"	112	107	111½	5½	
Madras & South'n Mahratta	3,230	31.3.34	117,975	+ 4,584	52	5,725,359	5,514,601	+ 210,758	"	127	114½	124½	7¼	
Rohilkund & Kumaon	572	31.3.34	13,315	+ 392	31	268,844	252,815	+ 16,029	"	260	225	251	6	
South India	2,526	31.3.34	87,561	+ 7,292	52	4,032,081	4,136,307	- 104,226	"	119½	112	117½	61½	
Various.														
Beira-Umtali	204	Feb., 1934	47,001	+ 10,100	21	241,467	191,476	+ 49,991	—	—	—	—	—	
Bilbao River & Cantabrian	15	Mar., 1934	2,719	+ 1,180	13	5,962	3,532	+ 2,430	—	—	—	—	—	
Egyptian Delta	621	10.4.34	5,444	+ 12	1	5,444	5,432	+ 12	Prf. Sh.	131½	154	2	Nil	
Great Southern of Spain	104	14.4.34	2,982	+ 768	15	33,955	31,961	+ 1,994	Inc. Deb.	4	3	5½	Nil	
Kenya & Uganda	1,625	Aug., 1933	159,746	+ 12,456	35	1,523,550	1,273,216	+ 250,334	—	—	—	—	—	
Manila	—	—	—	—	—	—	—	—	B. Deb.	53	33½	43½	81½	
Mashonaland	913	Feb., 1934	82,002	+ 22,400	21	441,733	295,532	+ 146,201	1 Mg. Db.	915½	42	94½	51½	
Midland of W. Australia	277	Feb., 1934	12,965	+ 445	34	108,714	104,268	+ 4,446	Inc. Deb.	89	70	96½	41½	
Nigerian	1,903	10.3.34	51,584	+ 14,555	50	1,734,963	1,774,290	- 39,327	—	—	—	—	—	
Rhodesia	1,538	Feb., 1934	140,537	+ 32,003	21	755,254	531,978	+ 223,276	4 p.c. Db.	981½	805½	101	31½	
South African	13,180	24.3.34	457,536	+ 66,380	52	23,264,166	20,231,517	+ 3,032,649	—	—	—	—	—	
Victorian	6,172	Jan., 1934	806,239	+ 59,834	30	5,113,895	5,386,185	- 272,290	—	—	—	—	—	
Zafra & Huelva	112	Mar., 1934	11,420	+ 994	13	34,675	31,396	+ 3,279	—	—	—	—	—	

NOTE.—Yields are based on the approximate current prices and are within a fraction of 1½.

† Receipts are calculated @ 1s. 6d. to the rupee.

§ ex dividend.

‡ Average rate of exchange for the week:—This year 3157<sup>64</sup>. Last year 4055<sup>64</sup>.

## FINANCIAL AND OPERATING RESULTS OF THE BRITISH GROUP RAILWAYS IN 1933

*An analysis of the accounts and statistics as shown in the published reports for the past year*

The accompanying tables and notes are compiled from the published accounts and statistics of the railway companies as set out in their annual reports. It is possible that differences in organisation or in methods of working or in the nature of the traffic dealt with limit the extent to which comparisons can be made between one railway company and another, and this point should be borne in mind in perusing the tables and the notes relating thereto. In arranging the tables, however, every endeavour has been made to set out the figures in such a way as to afford a fair comparison between the companies, but for the reason already given it may not always be possible to compare results between one company and another in the various units of measurement adopted.

It is observed that certain adjustments have been made in the figures for 1932 which are published by the companies for comparison with 1933. These alterations have not been given effect to in the accompanying tables, the 1932 figures being the same as those originally shown a year ago.

The most noticeable and certainly the most welcome feature of the accounts for 1933 is the increase in revenue during the second half of the year. At the end of July the aggregate decrease in railway receipts of the four companies in comparison with the corresponding period in 1932 was £3,282,000 or 3.97 per cent. At December 30 all but £109,000 of this decrease had been wiped out, indicating an average improvement of £144,000 per week in the five months. The position is really better than is shown owing to the fact that in comparison with 1932 there were two fewer working days, 1932 being Leap year and 1933 having 53 Sundays. During the current year the rate of increase has been more than maintained and for the first twelve weeks there has been an aggregate increase of £2,039,000 in comparison with the same period last year.

There is no doubt that a revival in trade conditions has been responsible for much of the increase in merchandise receipts, but coal carryings still lag behind, and at the end of 1933 receipts from this source were still more than £1,000,000 below 1932. On the passenger side the railway companies reaped the reward of taking their courage in both hands on the first of May, when they introduced their Summer tickets on the basis of a penny a mile. An extension of weekly holiday contract tickets (one enterprising passenger travelled 2,500 miles with a ten shilling ticket) and further improvements in the train service, coupled with a wonderfully fine summer assisted in bringing about a fairly substantial increase in revenue, sufficient in fact to justify the companies in extending their Summer fares first of all to the end of last year, and subsequently throughout 1934.

A spirit of enterprise has been manifest in the management of the railways during the past year, and the public has responded to the new attempts to popularise railway travel. The L.N.E.R. constructed five special open corridor vestibuled trains with buffet cars for long distance excursions, and two more are to be provided this year. That company also introduced "land cruises" giving a week's tour under luxurious conditions in the most picturesque parts of England and Scotland. Camping coaches, and week-end cruises to Holland and Belgium were other attractions.

Experiments have been made by most of the companies with passenger units with the object of providing more frequent services at a low cost. The Great Western Railway again accelerated its Cheltenham Flyer and reduced the journey time from Swindon to Paddington (a distance of 77½ miles) to 65 minutes, whilst in actual running the journey has on occasions been performed in under the hour. The London Midland & Scottish has built Pacific locomotives

of great tractive capacity for running without change of engine between London and Glasgow, 401½ miles, and the Royal Scot train, after being on show at the Chicago exhibition, made a triumphant progress through the United States and Canada and in this country after its return.

On the Southern system the extension of the electrification to Brighton and Worthing has met with immense success and further extensions are now in hand to Seaford, Eastbourne and Hastings. That company will open in the summer of next year a Channel ferry service between Dover and Dunkirk. The great new graving dock at Southampton was opened by the King in July.

The passing of the London Passenger Transport Act established the London Passenger Transport Board to take over the Underground railways and Tubes together with the tramways and omnibuses within the Metropolitan area, and set up a Standing Joint Committee on which the main-line companies are represented to secure a proper co-ordination of services. The Act also provides for the pooling of the local passenger receipts within the area.

Pooling agreements have been entered into by the London Midland & Scottish, London & North Eastern and Great Western Companies, and the four main-line companies collectively have acquired the businesses of Pickfords and Carter Paterson. Taking advantage of their air powers they have entered into agreements with Imperial Airways with the object of providing air transport services. The Great Western Company in fact instituted air services of its own last year between Birmingham, Cardiff, Torquay, and Plymouth.

The passing of the Road and Rail Traffic Act implemented to some extent the findings of the Salter Report. Licence duties were increased, though not to the extent recommended, under the Budget Act of 1933, and the Road and Rail Act supplemented on the freight side what had already been effected on the passenger side under the Road Traffic Act of 1930 in the way of regulation of motor vehicles on the highway. In addition another section of the Act gave permission to the railway companies to arrange "agreed charges" with traders, and a third section provided for the establishment of a Transport Advisory Council.

All the companies are extending their cartage boundaries for collection and delivery purposes and are proceeding rapidly with the mechanisation of their fleets. The example set by the Great Western Company of instituting a system of registered transits by rail has been followed by the other companies and the scheme has been taken advantage of to a large degree. The Great Western is also extending the provision of 20-ton wagons for coal traffic.

During the past year the four companies gave formal notice to determine the reference of any questions to the Central Wages Board or on appeal to the National Wages Board and the notice expired on March 3 of the present year.

### Tables 1 and 2—Capital Expenditure

Turning now to the actual figures disclosed by the published accounts it will be seen from Tables 1 and 2 that the aggregate capital expenditure has now reached almost to £1,150,000,000, of which £3,280,000 was added during the past year. This is much below the forecast of £7,785,000 made a year ago. The L.M.S. actually reduced its capital liabilities by £63,350, for although £530,000 was spent on way and works, there were credits of £435,000 in respect of rolling stock displaced, £71,000 on docks, £208,000 on electric power stations and £88,000 on land and non-railway property. Against these credits £53,280 was spent on manu-



facturing and repairing works and plant, £30,000 on road vehicles, £54,000 on hotels and £68,000 on the Northern Counties Section in Ireland. Out of £727,000 spent by the L.N.E.R. £54,000 was in respect of rolling stock, £91,000 on manufacturing and repairing works and plant, £174,000 on road vehicles, £100,000 on three train ferry steamers, and £260,000 on the new fish dock at Grimsby and dock improvements at Harwich, Hull and Parkeston.

The Great Western expenditure was £1,420,000, of which nearly £800,000 was for 20-ton wagons. Station improvements at Bristol, Cardiff and Paddington were responsible

for the greater part of the balance. On the Southern £110,000 was spent on electrification, £95,000 on additional station and siding accommodation at various places and £1,080,000 on Southampton Docks.

Prospective capital expenditure in the current year amounts to £7,396,000. The L.M.S. proposes to spend £1,818,000, including £754,000 on way and works, £154,000 on workshops, £100,000 on road vehicles, £133,000 on office accommodation in London and £595,000 on road transport undertakings. The £1,880,000 budget of the L.N.E.R.

(Text continued on page 748)

Table 1—Aggregate Capital Expenditure to December 31, Years 1932 and 1933

	L.M.S.R.		L.N.E.R.		G.W.R.		Southern	
	1933 £	1932 £	1933 £	1932 £	1933 £	1932 £	1933 £	1932 £
<b>LINES OPEN FOR TRAFFIC—</b>								
Capital expended .....	314,790,980	314,238,081	235,386,530	234,560,376	124,337,903	123,337,408	120,329,805	120,156,608
Miles of railway open for traffic (per Statistical Return Ia)	Miles. 6,942	Miles. 6,947	Miles. 6,371	Miles. 6,372	Miles. 3,787	Miles. 3,793	Miles. 2,165	Miles. 2,165
Average per mile .....	£ 45,346	£ 45,234	£ 36,947	£ 36,811	£ 32,833	£ 32,517	£ 55,580	£ 55,500
Lines not open for traffic .....	123,257	146,329	174,981	941,416	16,002	310,758	70,110	55,808
Lines leased and lines jointly leased other than "J" joint lines	—	—	—	—	10,337	10,382	26,591	26,591
Rolling-stock .....	59,745,924	60,180,920	46,873,544	46,819,206	21,089,180	21,101,359	17,284,485	17,284,485
Manufacturing and repairing works and plant	9,909,323	9,856,042	6,079,785	5,988,510	4,260,246	4,191,514	2,437,580	2,437,580
Total capital expended upon railway	384,569,484	384,421,372	288,514,840	288,309,508	149,713,668	148,951,421	140,148,571	139,961,072
Road vehicles .....	1,278,745	1,248,381	1,034,683	860,862	1,001,916	978,059	161,346	161,346
Horses .....	—	—	—	—	91,348	95,307	36,647	36,647
Garages, stables, &c. ....	1,509,184	1,508,235	623,274	613,186	243,523	237,542	168,474	168,474
Steamboats .....	3,021,981	3,013,576	2,967,405	2,872,303	414,965	485,611	2,843,457	2,843,457
Canals .....	6,001,649	6,005,059	1,310,368	1,311,174	772,123	779,166	77,700	77,700
Docks, harbours and wharves	10,104,560	10,175,386	25,447,025	25,187,097	21,153,389	21,109,543	12,626,469	11,542,427
Hotels .....	5,318,820	5,264,545	2,672,763	2,650,526	184,598	184,660	1,388,223	1,388,223
Electric power stations, &c. ....	1,773,967	1,982,084	250,055	244,020	516,919	516,828	688,892	688,892
Land, property, &c., not forming part of the railway or stations	15,168,487	15,256,553	12,039,167	12,081,372	3,156,242	3,185,334	5,787,951	5,856,206
Lines leased (Abstract "J")....	263,712	263,654	347,740	352,431	—	—	—	—
Lines jointly owned (Abstract "J")	6,776,429	6,790,684	10,492,982	10,510,045	319,609	319,695	335,850	341,779
Subscriptions to other com- panies .....	10,789,442	10,779,259	3,526,366	3,506,995	4,066,629	4,176,589	—	—
<b>Special items—</b>								
Limestone quarry .....	43,335	43,335	—	—	—	—	—	—
Northern Counties Railway, Ireland	6,102,445	6,034,018	—	—	—	—	—	—
County Donegal Railways Joint Committee	161,183	160,632	—	—	—	—	—	—
Stamp duty on capital .....	84,195	84,195	171,488	171,488	62,878	56,001	72,929	72,929
East London Railway Elec- trification	—	—	83,215	83,215	—	—	—	—
Great Northern & City Rail- way	—	—	443,997	443,997	—	—	—	—
Piccadilly Railway .....	—	—	140,973	140,973	—	—	—	—
Twenty-ton wagons .....	—	—	—	—	798,229	—	—	—
Parliamentary expenses .....	6,611	6,611	10,450	10,450	8,533	8,533	—	—
<b>TOTAL CAPITAL EXPENDITURE</b> .....	<b>£452,974,229</b>	<b>£453,037,579</b>	<b>£350,076,791</b>	<b>£349,349,642</b>	<b>£182,504,569</b>	<b>£181,084,289</b>	<b>£164,336,509</b>	<b>£163,139,152</b>

Table 2—Annual Capital Expenditure to December 31, Years 1932 and 1933

	L.M.S.R.		L.N.E.R.		G.W.R.		Southern	
	1933 £	1932 £	1933 £	1932 £	1933 £	1932 £	1933 £	1932 £
<b>LINES OPEN FOR TRAFFIC—</b>								
Land and compensation ...	26,865	20,315	31,157	Cr. 18,146	105,865	27,756	Cr. 1,358	Cr. 36,779
Construction of way and stations, engineering, &c.	506,730	1,266,485	48,386	337,416	971,975	1,231,635	174,031	572,216
Law charges and Parliamentary expenses	Cr. 133	3,922	1,067	273	12,769	2,533	523	291
Transfers ...	19,438	65,982	745,544	207,732	Cr. 90,114	2,070	—	—
Total ...	552,900	1,356,704	826,154	527,275	1,000,495	1,263,994	173,196	535,728
<b>LINES NOT OPEN FOR TRAFFIC—</b>								
Land and compensation ...	Cr. 85	14,978	98	18,999	Cr. 23,448	6,070	13,832	15,507
Construction of way and stations, engineering, &c.	Cr. 22,987	278,082	310,569	439,776	Cr. 269,465	161,244	—	Cr. 7,270
Law charges and Parliamentary expenses	—	968	15	1,383	Cr. 1,843	866	470	629
Transfers ...	—	Cr. 654,777	Cr. 1,077,116	Cr. 77,564	—	—	—	—
Total ...	Cr. 23,072	Cr. 360,749	Cr. 766,434	382,594	Cr. 294,756	168,180	14,302	8,866
Lines leased and lines jointly leased (other than "J" joint lines)—Total	—	—	—	—	Cr. 45	18	—	—
<b>ROLLING-STOCK—</b>								
Locomotives ...	Cr. 53,569	Cr. 1,249,122	1,290	1,321	—	4	—	—
Rail motor vehicles ...	Cr. 345,457	22,388	7,138	13,839	—	—	—	—
Carriages ...	Cr. 109,789	2,342,308	11,019	Cr. 5,040	—	54,503	—	—
Wagons and vans ...	62,992	Cr. 2,416,810	15,872	13,588	Cr. 12,179	12,208	—	—
Service vehicles ...	10,827	Cr. 294,010	19,019	28,599	—	—	—	—
Total ...	Cr. 434,996	Cr. 1,595,246	54,338	52,307	Cr. 12,179	66,715	—	—
<b>MANUFACTURING AND REPAIRING WORKS AND PLANT—</b>								
Land and buildings ...	—	—	Cr. 15,596	Cr. 12,838	70,640	68,069	—	—
Plant and machinery ...	—	—	106,870	32,093	Cr. 1,907	66,521	—	—
Total ...	53,280	Cr. 96,301	91,274	19,255	68,733	134,590	—	—
<b>Total capital expended upon railway</b>	<b>148,112</b>	<b>Cr. 695,592</b>	<b>205,332</b>	<b>981,431</b>	<b>762,247</b>	<b>1,633,461</b>	<b>187,498</b>	<b>544,594</b>
Horses ...	—	—	—	—	Cr. 3,959	Cr. 18,919	—	—
Road vehicles ...	30,365	81,605	173,821	152,690	23,856	9,736	—	3,746
Garages, stables, &c. ...	948	4,322	10,088	—	5,981	18,119	—	—
Steamboats ...	8,405	Cr. 51,436	95,102	Cr. 74,935	Cr. 70,647	Cr. 2,000	—	67,792
Canals ...	Cr. 3,409	Cr. 6,151	Cr. 807	471	Cr. 7,043	735	—	—
Docks, harbours and wharves ...	Cr. 70,827	Cr. 77,848	259,928	79,499	43,846	14,855	1,084,041	1,787,948
Hotels ...	54,274	12,172	22,237	8,400	Cr. 62	2,583	—	86
Electric power, stations, &c. ...	Cr. 208,117	37,345	6,035	Cr. 197,211	92	—	—	11
Land, property, &c., not forming part of the railway or stations	Cr. 88,066	Cr. 75,335	Cr. 42,205	Cr. 121,029	Cr. 29,091	Cr. 7,008	Cr. 68,255	Cr. 42,146
Lines leased—Total ...	58	7	Cr. 4,692	16,559	—	—	—	—
Lines jointly owned—Total ...	Cr. 14,255	2,434	Cr. 17,062	7,399	Cr. 86	Cr. 139	Cr. 5,928	Cr. 411
Subscriptions to other companies	10,184	272,464	19,371	199,294	Cr. 109,960	9,000	—	—
Stamp duty on capital ...	—	—	—	1,563	6,877	—	—	5,938
Northern Counties Railway ...	68,427	92,416	—	—	—	—	—	—
County Donegal Railways Joint Committee	551	112	—	—	—	—	—	—
Twenty-ton wagons ...	—	—	—	—	798,229	—	—	—
<b>TOTAL CAPITAL EXPENDITURE</b>	<b>Cr. 63,350</b>	<b>Cr. 403,485</b>	<b>727,148</b>	<b>1,054,131</b>	<b>1,420,280</b>	<b>1,660,423</b>	<b>1,197,356</b>	<b>2,367,558</b>

Table 3—Revenue Receipts and Expenditure of the whole undertaking, Years 1932 and 1933

	L.M.S.R.		L.N.E.R.		G.W.R.		Southern	
	1933	1932	1933	1932	1933	1932	1933	1932
<b>RAILWAY—</b>								
<i>Gross Receipts (per Account No. 10)</i>	£58,185,439	£58,507,261	£42,687,504	£42,648,558	£24,572,250	£24,512,951	£19,845,824	£19,672,548
Per cent. on capital expended	15·13	15·22	14·80	14·79	16·41	16·46	14·16	14·06
<i>Expenditure (per Account No. 10)</i>	£48,223,760	£49,143,807	£35,211,321	£35,633,585	£20,102,245	£20,488,654	£15,817,952	£16,012,454
Per cent. of gross receipts ....	82·88	84·00	82·49	83·55	81·81	83·58	79·70	81·40
<i>Net receipts (per Account No. 10)</i>	£9,961,679	£9,363,454	£7,476,183	£7,014,973	£4,470,005	£4,024,297	£4,027,872	£3,660,094
Per cent. on capital expended	2·59	2·44	2·59	2·43	2·99	2·70	2·87	2·62
<b>ROAD TRANSPORT—</b>								
<i>Gross receipts (per Account No. 11)</i>	£315,798	£296,872	£136,952	£113,579	£65,439	£48,733	£20,395	£14,757
<i>Expenditure (per Account No. 11)</i>	£267,800	£266,181	£122,130	£99,630	£52,847	£39,846	£14,856	£10,484
Per cent. of gross receipts ....	84·80	89·66	89·19	87·72	80·76	81·76	72·84	71·04
<i>Net receipts or expenditure (per Account No. 11)</i>	£47,998	£30,691	£14,822	£13,949	£12,592	£8,887	£5,539	£4,273
<b>STEAMBOATS—</b>								
<i>Gross receipts (per Account No. 12)</i>	£1,263,712	£1,295,387	£652,685	£674,516	£296,896	£313,999	£1,132,592	£1,107,966
Per cent. on capital expended	41·82	42·99	22·00	23·48	71·55	64·66	39·83	38·96
<i>Expenditure (per Account No. 12)</i>	£1,080,059	£1,197,879	£747,999	£750,357	£294,283	£300,349	£1,014,268	£1,056,745
Per cent. of gross receipts ....	85·47	92·47	114·60	111·25	99·12	95·65	89·55	95·38
<i>Net receipts or expenditure (per Account No. 12)</i>	£183,653	£97,508	loss £95,314	loss £75,841	£2,613	£13,650	£118,324	£51,221
Per cent. on capital expended	6·08	3·24	—	—	0·63	2·81	4·16	1·80
<b>CANALS—</b>								
<i>Gross receipts (per Account No. 13)</i>	£116,273	£120,620	£35,316	£36,511	£14,149	£14,914	£2,452	£2,218
Per cent. on capital expended	1·94	2·01	2·70	2·78	1·83	1·91	3·16	2·85
<i>Expenditure (per Account No. 13)</i>	£126,037	£135,467	£48,526	£49,049	£34,696	£39,779	£1,246	£1,560
Per cent. of gross receipts ....	108	112	137	134	245	267	51	70
<i>Net receipts or expenditure (per Account No. 13)</i>	loss £9,764	loss £14,847	loss £13,210	loss £12,538	loss £20,547	loss £24,865	£1,206	£658
Per cent. on capital expended	—	—	—	—	—	—	1·55	0·85
<b>DOCKS, HARBOURS AND WHARVES—</b>								
<i>Gross receipts (per Account No. 14)</i>	£784,608	£766,932	£2,520,988	£2,487,956	£1,971,439	£2,113,896	£1,018,648	£997,791
Per cent. on capital expended	7·76	7·54	9·91	9·88	9·32	10·01	8·07	8·64
<i>Expenditure (per Account No. 14)</i>	£849,487	£852,884	£2,425,399	£2,435,744	£1,905,188	£1,959,355	£725,790	£737,162
Per cent. of gross receipts ....	108·27	111·21	96·21	97·90	96·64	92·69	71·25	73·88
<i>Net receipts (per Account No. 14)</i>	loss £64,879	loss £85,952	£95,589	£52,212	£66,251	£154,541	£292,858	£260,629
Per cent. on capital expended	—	—	0·38	0·21	0·31	0·73	2·32	2·26
<b>HOTELS AND REFRESHMENT ROOMS AND CARS WHERE CATERING IS CARRIED ON BY THE COMPANY—</b>								
<i>Gross receipts (per Account No. 15)</i>	£2,636,945	£2,566,196	£1,667,924	£1,665,281	£637,826	£645,894	£104,263	£101,137
Per cent. on capital expended	49·58	48·74	62·40	62·83	346	350	7·51	7·29
<i>Expenditure (per Account No. 15)</i>	£2,350,237	£2,329,249	£1,582,244	£1,615,686	£560,963	£601,661	£104,851	£106,875
Per cent. of gross receipts ....	89·13	90·77	94·86	97·02	87·95	93·15	100·56	105·67
<i>Net receipts (per Account No. 15)</i>	£286,708	£236,947	£85,680	£49,595	£76,863	£44,233	loss £588	loss £5,738
Per cent. on capital expended	5·39	4·50	3·21	1·87	42	24	—	—

(Continued on next page)



Table 3—Revenue Receipts and Expenditure of the whole undertaking, Years 1932 and 1933—Continued

	L.M.S.R.		L.N.E.R.		G.W.R.		Southern	
	1933	1932	1933	1932	1933	1932	1933	1932
COLLECTION AND DELIVERY OF PARCELS AND GOODS—								
Gross Receipts (per Account No. 16)	£1,982,093	£1,930,534	£1,087,904	£1,052,297	£863,992	£811,956	£474,242	£432,647
Expenditure (per Account No. 16)	£2,283,399	£2,383,101	£1,358,544	£1,395,110	£1,012,331	£1,000,647	£413,722	£424,110
Per cent. of gross receipts	115·20	123·44	124·88	132·58	117·17	123·24	87·25	98·04
Net receipts (per account No. 16)	loss £301,306	loss £452,567	loss £270,640	loss £342,813	loss £148,339	loss £188,691	£60,520	£8,537
CAPITAL EXPENDED	£452,974,229	£453,037,579	£350,076,791	£349,349,642	£182,504,569	£181,084,289	£164,336,509	£163,139,152
TOTAL—								
Gross receipts (per Account No. 8)	£65,291,119*	£65,496,079*	£48,789,274	£48,678,700	£28,423,656†	£28,462,343	£22,598,417	£22,329,066
Per cent. on capital expended	14·41	14·46	13·94	13·93	15·57	15·72	13·75	13·69
Expenditure (per Account No. 8)	£55,185,091*	£56,318,697*	£41,496,164	£41,979,163	£23,970,743†	£24,430,291	£18,092,685	£18,349,392
Per cent. of gross receipts	84·52	85·99	85·05	86·24	84·33	85·83	80·06	82·18
Net receipts (per Account No. 8)	£10,106,028*	£9,177,382*	£7,293,110	£6,699,537	£4,452,913†	£4,032,052	£4,505,732	£3,979,674
Per cent. on capital expended	2·23	2·03	2·08	1·92	2·44	2·23	2·74	2·44

\* Including Limestone Quarry. † Including Air Transport. Gross Receipts £1,664; Expenditure £8,190

Table 4—Receipts in Respect of Railway Working (per Account No. 10), Years 1932 and 1933

	L.M.S.R.		L.N.E.R.		G.W.R.		Southern	
	1933	1932	1933	1932	1933	1932	1933	1932
PASSENGER TRAIN TRAFFIC—								
Passengers, including season tickets and workmen's tickets	£17,808,023	£17,816,001	£11,443,063	£11,458,331	£7,513,470	£7,591,339	£12,635,596	£12,317,818
Per cent. of traffic receipts	30·91	30·75	27·04	27·10	30·84	31·23	64·40	63·32
Mails, parcels under 2 cwt., parcels post excess luggage, and other merchandise, per passenger train	£6,472,846	£6,383,979	£4,327,708	£4,335,606	£2,963,343	£2,934,522	£2,232,080	£2,228,851
Per cent. of traffic receipts	11·23	11·02	10·23	10·26	12·16	12·07	11·37	11·46
Total passenger train receipts	£24,280,869	£24,199,980	£15,770,771	£15,793,937	£10,476,813	£10,525,861	£14,867,676	£14,546,669
Per cent. of traffic receipts	42·14	41·77	37·27	37·36	43·00	43·30	75·77	74·78
GOODS TRAIN TRAFFIC—								
Merchandise (excluding classes 1-6)	£16,493,095	£16,515,198	£11,087,835	£11,202,819	£6,589,953	£6,586,132	£2,454,650	£2,547,743
Per cent. of traffic receipts	28·62	28·51	26·20	26·50	27·05	27·10	12·51	13·09
Minerals and merchandise (Classes 1-6)	£4,665,001	£4,440,317	£3,946,736	£3,460,288	£1,976,626	£1,735,727	£665,071	£652,773
Per cent. of traffic receipts	8·10	7·66	9·33	8·19	8·11	7·14	3·39	3·36
Coal, coke and patent fuel	£11,599,364	£12,159,157	£11,138,934	£11,388,061	£5,113,520	£5,199,739	£1,568,947	£1,636,299
Per cent. of traffic receipts	20·13	20·99	26·32	26·94	20·99	21·40	8·00	8·41
Live Stock	£582,702	£618,570	£374,004	£428,344	£208,312	£258,189	£64,266	£69,736
Per cent. of traffic receipts	1·01	1·07	0·88	1·01	0·85	1·06	0·33	0·36
Total goods train receipts	£33,340,162	£33,733,242	£26,547,509	£26,479,512	£13,888,411	£13,779,787	£4,752,934	£4,906,551
Per cent. of traffic receipts	57·86	58·23	62·73	62·64	57·00	56·70	24·23	25·22
TOTAL TRAFFIC RECEIPTS	£57,621,031	£57,933,222	£42,318,280	£42,273,449	£24,365,224	£24,305,648	£19,620,610	£19,453,220
Miscellaneous	£564,408	£574,039	£369,224	£376,110	£207,026	£207,303	£225,214	£219,328
TOTAL RECEIPTS IN RESPECT OF RAILWAY WORKING	£58,185,439	£58,507,261	£42,687,504	£42,649,559	£24,572,250	£24,512,951	£19,845,824	£19,672,548

(Continued from page 744)

includes £415,000 on way and works, £70,000 on road vehicles, £498,000 on the new fish dock at Grimsby, £249,000 on other docks, and £546,000 on road transport. The G.W.R. has an estimated outlay of £1,393,000 of which £350,000 is on station improvements at Bristol and Cardiff and £70,000 on additional accommodation elsewhere,

£100,000 on South Wales docks, £332,000 on 20-ton wagons and £475,000 on road transport. On the Southern an expenditure of £2,305,000 is forecast. This includes £600,000 on further electrification, £100,000 on station improvements, £200,000 on the train ferry terminal at Dover, £300,000 on train ferry steamers, £560,000 on Southampton Docks and £545,000 on road transport.

Table 5—Number of and Receipts from Passengers and Average Receipt per Passenger, Years 1932 and 1933

	L.M.S.R.		L.N.E.R.		G.W.R.		Southern	
	1933	1932	1933	1932	1933	1932	1933	1932
<b>ORDINARY PASSENGERS—</b>								
<i>First class—</i>								
Number	3,367,907	3,515,310	2,249,511	2,408,452	887,953	906,995	3,459,473	3,551,153
Receipts	£1,100,835	£1,168,841	£681,892	£715,735	£409,652	£432,491	£775,030	£817,524
Average per passenger	6/6.45	6/7.80	6/0.75	5/11.32	9/2.72	9/6.44	4/5.77	4/7.25
<i>Second class—</i>								
Number	8,108	9,513	1,179,911	1,304,055	—	—	362,886	332,450
Receipts	£121	£146	£87,496	£90,848	—	—	£273,250	£253,257
Average per passenger	3.58d.	3.68d.	1/5.80	1/4.72	—	—	15/0.72	15/2.83
<i>Third class—</i>								
Number	207,518,322	196,125,303	142,733,431	137,766,310	82,977,999	82,797,855	148,864,900	144,731,474
Receipts	£13,265,768	£13,171,361	£8,349,257	£8,227,366	£6,210,900	£6,243,198	£7,871,944	£7,597,406
Average per passenger	1/3.34	1/4.12	1/2.04	1/2.33	1/5.96	1/6.10	1/0.69	1/0.60
<b>WORKMEN'S TICKETS—</b>								
Number	78,008,510	77,863,803	40,737,354	40,925,526	24,686,776	24,640,314	60,581,206	58,670,622
Receipts	£1,058,874	£1,046,601	£607,214	£597,863	£295,010	£288,613	£922,366	£893,195
Average per passenger	3.26d.	3.23d.	3.58d.	3.51d.	2.87d.	2.81d.	3.65d.	3.65d.
<b>TOTAL—</b>								
Number	288,902,847	277,513,929	186,900,207	182,404,343	108,552,728	108,345,164	213,268,465	207,285,699
Receipts	£15,425,598	£15,386,949	£9,725,859	£9,631,812	£6,915,562	£6,964,302	£9,842,590	£9,561,382
Average per passenger	1/0.81	1/1.31	1/0.49	1/0.67	1/3.29	1/3.43	11/08d.	11/07d.
<b>SEASON TICKETS—</b>								
<i>First class—</i>								
Number	21,887	23,575	16,616	18,251	3,939	4,327	19,112	19,651
Receipts	£630,324	£672,168	£364,138	£403,232	£107,421	£118,764	£530,025	£552,167
<i>Second class—</i>								
Number	412	455	33,255	35,713	—	—	—	—
Receipts	£1,927	£2,200	£395,129	£422,517	—	—	—	—
<i>Third class—</i>								
Number	195,219	192,615	103,877	108,273	62,759	65,557	165,986	163,421
Receipts	£1,750,174	£1,754,684	£957,937	£1,000,770	£490,487	£508,273	£2,262,981	£2,204,269
<b>TOTAL—</b>								
Number	217,518	216,645	153,748	162,237	66,698	69,884	185,098	183,072
Receipts	£2,382,425	£2,429,052	£1,717,204	£1,826,519	£597,908	£627,037	£2,793,006	£2,756,436
<b>TOTAL RECEIPTS FROM PASSENGERS, INCLUDING SEASON TICKETS</b>	<b>£17,808,023</b>	<b>£17,816,001</b>	<b>£11,443,062</b>	<b>£11,458,331</b>	<b>£7,513,470</b>	<b>£7,591,339</b>	<b>£12,635,596</b>	<b>£12,317,818</b>

**Table 3—Revenue Receipts and Expenditure—Whole Undertaking**

Reference has already been made to the improvement in trade in the second half of the year but the following figures which give a comparison of the gross receipts, working expenses and net receipts of the whole undertaking for the years 1923, 1929 and 1933 indicate what a tremendous amount of leeway has to be made up:—

	1923	1929	1933
Gross Receipts—			
L.M.S.R. ...	87,317,070	81,661,048	65,291,119
L.N.E.R. ...	67,026,326	63,295,455	48,789,274
G.W.R. ...	36,723,331	36,184,053	28,423,656
Southern ...	26,440,218	26,507,018	22,598,417
Total ...	217,506,945	207,647,574	165,102,466

	1923	1929	1933
Expenses—			
L.M.S.R. ...	71,019,175	66,906,662	55,185,091
L.N.E.R. ...	54,836,216	50,895,513	41,496,164
G.W.R. ...	29,778,508	29,208,791	23,970,743
Southern ...	21,327,221	20,914,249	18,092,685
Total ...	176,961,120	167,925,215	138,744,683
Net Receipts—			
L.M.S.R. ...	16,297,895	14,754,386	10,106,028
L.N.E.R. ...	12,190,110	12,399,942	7,293,110
G.W.R. ...	6,944,823	6,975,262	4,452,913
Southern ...	5,112,997	5,592,769	4,505,732
Total ...	40,545,825	39,722,359	26,357,783

The year 1929 does not compare very unfavourably with 1923, which, it will be remembered, was the first year after amalgamation, for although gross receipts dropped by nearly £10,000,000, working expenses were reduced by £9,000,000

**Table 6—Tonnage, Receipts and Average Receipt per ton from Merchandise (excluding Classes 1-6), Minerals and Merchandise (Classes 1-6), and Coal, Coke and Patent Fuel, and Total Goods Train Receipts, Years 1932 and 1933**

	L.M.S.R.		L.N.E.R.		G.W.R.		Southern	
	1933	1932	1933	1932	1933	1932	1933	1932
<b>MERCHANDISE (excluding classes 1-6)—</b>								
Tonnage ....	24,513,253	24,110,112	18,830,751	18,929,072	11,374,627	11,324,767	4,608,770	4,675,986
Receipts ....	£16,493,095	£16,515,198	£11,087,835	£11,202,819	£6,589,953	£6,586,132	£2,454,650	£2,547,743
Average per ton ....	13 5·48d.	13 8·40d.	11 9·32d.	11/10·04d.	11 7·05d.	11 7·58d.	10 7·82d.	10/10·77d.
Percentage of total goods train receipts	49·47	48·96	41·76	42·31	47·45	47·80	51·65	51·93
<b>MINERALS AND MERCHANDISE (classes 1-6)—</b>								
Tonnage ....	21,743,949	20,703,471	19,759,495	17,773,046	8,957,262	8,478,144	3,502,222	3,196,735
Receipts ....	£4,665,001	£4,440,317	£3,946,736	£3,460,288	£1,976,626	£1,735,727	£665,071	£652,773
Average per ton ....	4 3·49d.	4 3·47d.	3/11·94d.	3/10·73d.	4 4·96d.	4 1·14d.	3 9·58d.	4 1·01d.
Percentage of total goods train receipts	13·99	13·16	14·87	13·07	14·23	12·60	13·99	13·30
<b>COAL, COKE AND PATENT FUEL—</b>								
Tonnage ....	69,575,451	72,040,580	75,390,906	75,337,586	41,195,434	41,679,732	8,121,914	8,188,191
Receipts ....	£11,599,364	£12,159,157	£11,138,934	£11,388,061	£5,113,520	£5,199,739	£1,568,947	£1,636,299
Average per ton ....	3 4·01d.	3 4·51d.	2 11·46d.	3 0·28d.	2 5·79d.	2 5·94d.	3 10·36d.	3 11·96d.
Percentage of total goods train receipts	34·79	36·05	41·96	43·00	36·82	37·73	33·01	33·35
<b>TOTAL—</b>								
Tonnage	115,832,653	116,854,163	113,981,152	112,039,704	61,527,323	61,482,643	16,232,906	16,060,912
Receipts ....	£32,757,460	£33,114,672	£26,173,505	£26,051,168	£13,680,099	£13,521,598	£4,688,668	£4,836,815
Average per ton ....	5 7·87d.	5 8·01d.	4 7·11d.	4 7·80d.	4 5·36d.	4 4·78d.	5 9·32d.	6 0·28d.
<b>LIVE STOCK—</b>								
Number ....	6,839,116	7,165,005	4,708,650	5,243,388	2,253,296	2,575,724	727,375	758,611
Receipts ....	£582,702	£618,570	£374,005	£428,344	£208,312	£258,189	£64,266	£69,736
Percentage of total goods train receipts	1·75	1·83	1·41	1·62	1·50	1·87	1·35	1·42
<b>TOTAL GOODS TRAIN RECEIPTS</b>	<b>£33,340,162</b>	<b>£33,733,242</b>	<b>£26,547,509</b>	<b>£26,479,512</b>	<b>£13,888,411</b>	<b>£13,779,787</b>	<b>£4,752,934</b>	<b>£4,906,551</b>



Table 7—Originating Freight Traffic, Years 1932 and 1933

	L.M.S.R.		L.N.E.R.		G.W.R.		Southern	
	1933	1932	1933	1932	1933	1932	1933	1932
	Tons	Tons	Tons	Tons	Tons	Tons	Tons	Tons
Merchandise (excluding Classes 1-6)	15,749,361	15,592,849	14,151,075	14,292,291	7,938,024	7,963,227	2,883,090	3,009,445
Minerals and merchandise (Classes 1-6)	17,452,720	16,625,678	16,125,783	14,332,028	6,282,621	6,037,032	1,780,212	1,589,191
Coal, coke and patent fuel	56,583,801	58,417,560	65,644,474	65,398,861	34,141,676	34,541,076	3,291,070	3,014,578
Total	89,785,882	90,636,087	95,921,332	94,023,180	48,362,321	48,541,335	7,954,372	7,613,214
<i>Principal Traffic—</i>								
Bricks, blocks and tiles	1,828,428	1,836,741	2,361,970	1,855,913	435,913	377,372	213,387	116,977
Cement and lime	1,053,100	991,963	633,915	631,739	505,182	544,559	241,929	297,068
Creosote, tar and pitch	704,886	743,985	532,481	567,671	171,050	177,321	147,396	144,961
Grain, flour and milling offals	845,085	925,718	1,607,778	1,718,032	1,087,382	1,095,384	265,072	300,033
Gravel and sand	844,782	898,989	545,561	645,327	157,440	187,012	152,899	180,724
Iron and steel blooms, billets, ingots, &c.	859,397	656,907	1,021,144	647,670	861,167	754,912	1,975	4,865
Iron and steel scrap	1,643,807	1,264,418	1,192,762	827,053	690,756	566,085	108,984	81,442
Iron and steel, other descriptions	2,088,039	1,879,021	1,740,963	1,600,780	1,018,558	936,085	28,422	29,184
Iron ore	2,651,019	2,131,297	2,870,708	2,730,078	506,015	482,661	3,228	7,129
Iron, pig	1,150,463	1,027,793	750,095	617,159	341,577	289,312	889	670
Limestone and chalk	1,713,703	1,690,855	960,104	882,860	330,330	317,983	54,986	72,095
Manure, packed	224,219	292,889	621,700	632,538	95,109	100,670	128,342	146,753
Oil cake	325,408	316,009	388,171	421,552	116,880	129,155	73,627	87,572
Road making and road repairing material	2,046,591	2,587,022	1,083,363	1,193,807	1,036,078	1,217,673	277,993	335,302
Round timber, including mining	305,058	310,850	982,668	1,008,045	769,910	827,093	46,470	48,859
Timber, other than round	688,606	598,671	868,443	780,799	196,518	180,524	104,717	90,600
Vegetables	328,701	328,447	1,996,829	1,727,840	121,473	123,553	76,940	70,231
<i>Live Stock—</i>								
	Heads	Heads	Heads	Heads	Heads	Heads	Heads	Heads
Horses	12,185	12,023	6,402	3,854	15,217	11,313	4,330	3,179
Cattle	1,042,453	1,109,440	832,197	915,946	345,891	425,085	111,439	123,567
Calves	98,148	101,844	100,124	123,078	90,239	87,671	17,027	18,758
Sheep and lambs	3,479,474	3,736,404	2,157,000	2,565,965	863,129	924,469	401,111	408,076
Pigs	357,649	350,244	593,814	589,042	301,572	510,241	104,779	94,430
Miscellaneous	341	320	1,217	1,002	60	613	9	428
Total	4,990,250	5,310,275	3,690,754	4,198,887	1,616,108	1,959,392	638,695	648,438

and net receipts were less than £1,000,000 below 1923. In fact in the case of all companies except the L.M.S. the net receipts were actually higher in 1929 than they were in 1923. 1933, however, presents a very different picture. In the 10 years there has been a drop of over £52,000,000 in receipts, and although working expenses have fallen by £38,000,000, the net receipts are £14,000,000 below those of 1923. It is a long climb from the trough to the crest of the wave as measured by the results of either 1923 or 1929, and a still bigger climb before the standard revenue is attained.

Looking at Table 3 itself it will be seen that all four companies have effected a reduction in the ratio of working

expenses to receipts, the Southern still having the lowest percentage, viz., 80.06. All companies likewise have improved their net receipts in relation to capital expenditure, the Southern again showing the best results with 2.74 per cent.

It will be seen from the footnote to the table that the air transport services of the G.W.R. earned £1,664 for an expenditure of £8,190 mainly due to the high cost of providing adequate terminal facilities, but yielding, in the words of the Chairman of that company, "very useful data for determining future policy."

(Text continued on page 753)

Table 8—Expenditure in respect of Railway Working, Years 1932 and 1933

	L.M.S.R.		L.N.E.R.		G.W.R.		Southern	
	1933	1932	1933	1932	1933	1932	1933	1932
A.—MAINTENANCE OF WAY AND WORKS.	£6,428,465	£6,479,037	£4,460,499	£4,659,079	£2,961,240	£2,936,606	£2,938,112	£2,958,845
Per cent. of traffic expenditure	13·34	13·18	12·61	13·03	14·78	14·37	18·60	18·50
B.—MAINTENANCE OF ROLLING-STOCK.	£7,703,332	£8,064,249	£6,842,932	£6,557,945	£3,085,352	£3,203,307	£2,316,792	£2,363,387
Per cent. of capital expenditure on rolling-stock.	12·89	13·40	14·60	14·22	14·63	15·18	13·40	13·67
Per cent. of traffic expenditure	15·98	16·41	19·34	18·33	15·40	15·68	14·67	14·78
C.—LOCOMOTIVE RUNNING EXPENSES.	£11,611,069	£11,922,047	£8,706,913	£8,911,009	£4,820,180	£4,941,491	£3,954,015	£3,947,211
Per cent. of traffic expenditure.	24·09	24·26	24·61	24·91	24·06	24·18	25·03	24·68
D.—TRAFFIC EXPENSES ....	£17,652,114	£17,888,626	£12,256,344	£12,610,435	£6,967,538	£7,173,137	£4,853,582	£5,007,597
Per cent. of traffic expenditure.	36·63	36·40	34·65	35·25	34·77	35·10	30·72	31·32
E.—GENERAL CHARGES ....	£2,096,322	£2,038,844	£1,267,592	£1,205,227	£911,962	£882,108	£730,986	£717,677
Per cent. of traffic expenditure.	4·35	4·15	3·58	3·37	4·55	4·31	4·63	4·49
LAW CHARGES ....	£64,251	£64,578	£40,170	£38,808	£24,487	£25,931	£25,305	£27,255
Per cent. of traffic expenditure.	0·13	0·13	0·12	0·11	0·12	0·13	0·16	0·17
PARLIAMENTARY EXPENSES	£10,668	£11,697	£3,194	£3,370	£1,059	£385	£2,000	£2,000
Per cent. of traffic expenditure.	0·02	0·02	0·01	0·01	0·01	—	0·01	0·01
COMPENSATION ....	£312,978	£351,542	£212,097	£190,775	£119,202	£110,609	£86,485	£62,428
Per cent. of traffic expenditure.	0·65	0·72	0·60	0·53	0·59	0·54	0·55	0·39
RATES TRIBUNAL ....	£4,330	£4,267	£3,313	£3,631	£2,209	£2,318	£1,930	£2,025
Per cent. of traffic expenditure	0·01	0·01	0·01	0·01	0·01	0·01	0·01	0·01
RATES, TAXES AND TITHE RENT CHARGES	£476,383	£483,776	£337,938	£339,112	£264,811	£268,727	£179,754	£179,688
Per cent. of traffic expenditure	0·99	0·98	0·96	0·95	1·32	1·31	1·14	1·13
RAILWAY FREIGHT REBATES FUND	£1,420,404	£1,419,131	£1,005,710	£980,006	£801,507	£793,915	£557,007	£556,994
Per cent. of traffic expenditure	2·95	2·89	2·84	2·74	4·00	3·89	3·53	3·48
NATIONAL INSURANCE ACTS	£431,763	£447,338	£354,770	£362,064	£211,028	£224,326	£128,421	£141,074
Per cent. of traffic expenditure	0·90	0·91	1·00	1·01	1·05	1·10	0·81	0·88
G.—RUNNING POWERS (BALANCE)	Cr. £20,956	Cr. £31,279	Cr. £116,035	Cr. £90,829	Cr. £132,466	Cr. £127,870	£21,936	£24,852
Per cent. of traffic expenditure	0·04	0·06	0·33	0·25	0·66	0·62	0·14	0·16
TOTAL TRAFFIC EXPENDITURE	£48,191,122	£49,143,853	£35,375,437	£35,770,632	£20,038,110	£20,434,990	£15,796,325	£15,991,033
Per cent. on traffic receipts	82·82	84·83	83·59	84·62	82·24	84·08	80·51	82·20
Per train-mile ....	6s. 8·54d.	6s. 11·00d.	6s. 10·24d.	7s. 0·02d.	6s. 6·26d.	6s. 7·89d.	4s. 10·64d.	5s. 2·25d.
H.—MILEAGE DEMURRAGE AND WAGON HIRE (BALANCE)	Cr. £15,633	Cr. £49,377	Cr. £207,157	Cr. £179,466	£63,511	£52,606	£16,144	£15,893
MISCELLANEOUS ....	£48,271	£49,331	£43,041	£42,419	£624	£1,058	£5,483	£5,528
Total expenditure ....	£48,223,760	£49,143,807	£35,211,321	£35,633,585	£20,102,245	£20,488,654	£15,817,952	£16,012,454
Per cent. on receipts in respect of railway working	82·88	84·00	82·49	83·55	81·81	83·58	79·70	81·40
Per train-mile ....	6s. 8·59d.	6s. 11·00d.	6s. 9·85d.	6s. 11·70d.	6s. 6·51d.	6s. 8·10d.	4s. 10·72d.	5s. 2·33d.

Table 9—Maintenance and Renewal of Way and Works, Abstract "A," Years 1932 and 1933

	L.M.S.R.		L.N.E.R.		G.W.R.		Southern	
	1933	1932	1933	1932	1933	1932	1933	1932
Miles of line maintained reduced to single track (including sidings) (per Statistical Return X)	19,193	19,195	16,321	16,262	8,665	8,618	5,333	5,334
Train mileage (per Statistical Return XIIb)	143,612,725	142,101,721	103,240,137	102,178,505	61,452,040	61,389,693	64,650,997	61,652,653
Traffic receipts (per Account No. 10)	£57,621,031	£57,933,222	£42,318,280	£42,273,449	£24,365,224	£24,305,648	£19,620,610	£19,453,220
SUPERINTENDENCE (SALARIES AND OFFICE EXPENSES)	£455,151	£445,109	£310,798	£310,169	£179,676	£182,048	£167,734	£171,947
Per mile of single track	£23·71	£23·19	£19·04	£19·07	£20·74	£21·12	£31·45	£32·24
Per train-mile	0·76d.	0·75d.	0·72d.	0·73d.	0·70d.	0·71d.	0·62d.	0·67d.
MAINTENANCE OF ROADS, BRIDGES AND WORKS	£801,543	£833,774	£528,588	£587,459	£449,897	£483,733	£318,080	£340,363
Per mile of single track	£41·76	£43·44	£32·39	£36·12	£51·92	£56·13	£59·64	£63·81
Per train-mile	1·34d.	1·41d.	1·23d.	1·38d.	1·76d.	1·89d.	1·18d.	1·32d.
MAINTENANCE OF PERMANENT WAY—								
COMPLETE RENEWALS—								
Mileage of single track renewed (per Statistical Return X)	522	525	192	176	252	314	144	176
Wages	£280,075	£278,811	£111,056	£136,894	£132,859	£161,316	£93,529	£108,030
Per mile of single track	£14·59	£14·53	£6·80	£8·42	£15·34	£18·72	£17·54	£20·25
Per mile of single track renewed	£537	£531	£578	£778	£527	£514	£650	£614
Per train-mile	0·47d.	0·47d.	0·26d.	0·32d.	0·52d.	0·63d.	0·35d.	0·42d.
Materials	£890,258	£940,733	£308,870	£319,003	£457,964	£582,104	£298,959	£379,470
Per mile of single track	£46·39	£49·01	£18·93	£19·61	£52·85	£67·55	£56·06	£71·14
Per mile of single track renewed	£1,705	£1,792	£1,609	£1,813	£1,817	£1,854	£2,076	£2,156
Per train-mile	1·48d.	1·59d.	0·72d.	0·75d.	1·79d.	2·28d.	1·11d.	1·48d.
Engine power and wagon repairs	£70,421	£62,044	£24,864	£22,601	£22,807	£26,731	£21,236	£20,294
Per mile of single track	£3·67	£3·23	£1·52	£1·39	£2·63	£3·10	£3·98	£3·81
Per mile of single track renewed	£135	£118	£130	£128	£91	£85	£147	£115
Per train-mile	0·12d.	0·10d.	0·06d.	0·05d.	0·09d.	0·10d.	0·08d.	0·08d.
Total	£1,240,754	£1,281,588	£444,790	£478,498	£613,630	£770,151	£413,724	£507,794
Per mile of single track	£64·65	£66·77	£27·25	£29·42	£70·82	£89·37	£77·58	£95·20
Per mile of single track renewed	£2,377	£2,441	£2,317	£2,719	£2,435	£2,453	£2,873	£2,885
Per train-mile	2·07d.	2·16d.	1·04d.	1·12d.	2·40d.	3·01d.	1·54d.	1·98d.
Percentage of capital expenditure on way and works (per Account No. 4)	0·39	0·41	0·19	0·20	0·49	0·62	0·34	0·42
REPAIRS AND PARTIAL RENEWALS—								
Wages	£2,012,018	£2,053,374	£1,538,081	£1,595,443	£956,856	£998,442	£717,574	£741,724
Per mile of single track	£104·83	£106·98	£94·24	£98·11	£110·43	£115·86	£134·55	£139·06
Per train-mile	3·36d.	3·47d.	3·57d.	3·75d.	3·74d.	3·90d.	2·66d.	2·89d.
Materials	£606,400	£737,888	£441,638	£544,657	£181,810	£201,419	£317,693	£284,147
Per mile of single track	£31·60	£38·44	£27·06	£33·49	£20·98	£23·37	£59·57	£53·27
Per train-mile	1·01d.	1·25d.	1·03d.	1·28d.	0·71d.	0·79d.	1·18d.	1·11d.
Engine power and wagon repairs	£99,632	£121,968	£51,137	£51,314	£17,417	£16,885	£26,551	£28,487
Per mile of single track	£5·19	£6·35	£3·13	£3·16	£2·01	£1·96	£4·98	£5·34
Per train-mile	0·17d.	0·20d.	0·12d.	0·12d.	0·07d.	0·07d.	0·10d.	0·11d.

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**Table 4—Receipts in Respect of Railway Working**

Three companies out of the four show modest increases in receipts, the figures being as follows:—

Company	Increase £	Increase Per cent.
L.N.E.R. ...	38,945	0·09
G.W.R. ...	59,299	0·24
Southern ...	173,276	0·88

The L.M.S. receipts were £321,822 below those of the previous year.

**Table 5—Number of and Receipts from Passengers**

The reduction of fares policy does not appear to have assisted in the revival of first class travel, as all companies show reductions both in numbers and receipts. Second class travel on the L.M.S. and L.N.E. systems has continued to decline, and the increase of 30,000 passengers and £20,000 in receipts on the Southern indicates an improvement in Continental travel. In third class there is an aggregate increase of about 20,000,000 passenger journeys, accompanied, except in the case of the Great Western, by an increase in receipts. Receipts from workmen have increased all round, thus reflecting the improvement in trade.

All companies except the Southern have sustained a loss

in contract ticket receipts. The Southern, although losing £22,000 in first class travel has made up for this loss by an increase of £58,000 from third class contracts.

It may be worth while just to look at the figures of passenger journeys and receipts last year with those of ten years ago. They are as follows:—

	1933	1923	Decrease Per cent.
Journeys, including contract tickets	1,171,461,447	1,430,715,629	18
Receipts ...	£49,400,151	£68,851,832	28

The figures of the Southern Company come out much better than those of the four groups taken as a whole. The Southern has actually a gain of 8 per cent. in passenger journeys and the loss in receipts is only 14 per cent. Taking the other three companies by themselves their receipts have fallen by 32 per cent. and passenger journeys by 25 per cent. There appears to be something in electrification of heavy traffic lines.

**Table 6—Goods Train Traffic—Tons and Receipts**

The greatest improvement in goods train traffic is shown in respect of minerals and merchandise (Classes 1—6) indicating a revival in the heavy industries. There is an increase of 3,800,000 tons or 7·60 per cent., and in receipts of £964,000

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**Table 9—Maintenance and Renewal of Way and Works, Abstract "A," Years 1932 and 1933—Continued**

	L.M.S.R.		L.N.E.R.		G.W.R.		Southern	
	1933	1932	1933	1932	1933	1932	1933	1932
REPAIRS AND PARTIAL RE-NEWALS—continued								
Total ...	£2,718,050	£2,913,230	£2,030,856	£2,191,414	£1,156,083	£1,216,746	£1,061,818	£1,054,358
Per mile of single track ...	£141·62	£151·77	£124·43	£134·76	£133·42	£141·19	£199·10	£197·67
Per train-mile ...	4·54d.	4·92d.	4·72d.	5·15d.	4·52d.	4·76d.	3·94d.	4·11d.
MAINTENANCE OF SIGNALLING	£628,676	£646,705	£520,140	£495,438	£302,270	£323,587	£236,077	£390,102
Per mile of single track ...	£32·76	£33·69	£31·87	£30·47	£34·88	£37·55	£44·27	£73·13
Per train-mile ...	1·05d.	1·09d.	1·21d.	1·16d.	1·18d.	1·27d.	0·88d.	1·52d.
MAINTENANCE OF TELEGRAPHS AND TELEPHONES	£159,926	£169,973	£140,442	£117,864	£120,914	£90,092	£57,310	£72,456
Per mile of single track ...	£8·33	£8·85	£8·61	£7·25	£13·95	£10·45	£10·74	£13·58
Per train-mile ...	0·27d.	0·29d.	0·33d.	0·28d.	0·47d.	0·35d.	0·21d.	0·28d.
MAINTENANCE OF ELECTRIC TRACK EQUIPMENT	£25,030	£22,505	£13,344	£8,887	£2,484	£1,359	£56,930	£55,506
Per mile of single track ...	£1·30	£1·17	£0·82	£0·55	£0·29	£0·15	£10·68	£10·40
Per train-mile ...	0·04d.	0·04d.	0·03d.	0·02d.	0·01d.	0·01d.	0·21d.	0·22d.
MAINTENANCE OF STATIONS AND BUILDINGS	£790,188	£904,125	£500,930	£549,441	£425,353	£538,358	£341,249	£503,944
Per mile of single track ...	£41·17	£47·10	£30·69	£33·79	£49·09	£62·47	£63·99	£94·48
Per train-mile ...	1·32d.	1·53d.	1·16d.	1·29d.	1·66d.	2·10d.	1·27d.	1·96d.
TRANSFER TO OR FROM SUSPENSE ACCOUNT	Cr. £390,855	Cr. £737,972	Cr. £29,389	Cr. £80,090	Cr. £289,068	Cr. £669,469	£285,190	Cr. £137,624
Total of abstract ...	£6,428,465	£6,479,037	£4,460,499	£4,659,079	£2,961,240	£2,936,606	£2,938,112	£2,958,845
Per mile of single track ...	£334·94	£337·54	£273·30	£286·50	£341·75	£340·75	£550·93	£554·71
Per train-mile ...	10·74d.	10·94d.	10·37d.	10·94d.	11·57d.	11·48d.	10·91d.	11·52d.
Per cent. on traffic receipts	11·16	11·18	10·54	11·02	12·15	11·98	14·97	15·21
QUANTITIES OF PRINCIPAL MATERIALS USED (PER STATISTICAL RETURN X)—								
Ballast ...	Yards 676,722	Yards 735,603	Yards 461,127	Yards 421,267	Yards 332,920	Yards 352,745	Yards 238,443	Yards 247,003
Rails ...	Tons 85,772	Tons 90,640	Tons 31,276	Tons 32,702	Tons 29,242	Tons 36,594	Tons 22,578	Tons 29,163
Sleepers ...	No. 1,337,227	No. 1,465,792	No. 895,150	No. 929,973	No. 620,838	No. 762,393	No. 575,725	No. 583,089

Table 10—Maintenance of Rolling-Stock, Abstract "B," Years 1932 and 1933

	L.M.S.R.		L.N.E.R.		G.W.R.		Southern	
	1933	1932	1933	1932	1933	1932	1933	1932
<b>TRAIN-MILES PER STATISTICAL RETURN XIIc—</b>								
Coaching .....	92,150,131	91,606,065	66,350,886	65,617,526	39,581,585	39,425,059	56,661,151	53,697,541
Goods .....	51,780,095	52,503,059	41,466,484	41,120,062	22,045,677	22,138,269	6,886,177	6,853,264
Total .....	143,930,226	144,109,124	107,817,370	106,737,588	61,627,262	61,563,328	63,547,328	60,550,805
<b>TRAFFIC RECEIPTS PER ACCOUNT No. 10—</b>								
Passenger .....	£24,280,869	£24,199,980	£15,770,771	£15,793,937	£10,476,813	£10,525,861	£14,867,676	£14,546,669
Goods .....	£33,340,162	£33,733,242	£26,547,509	£26,479,512	£13,888,411	£13,779,787	£4,752,934	£4,906,551
Total .....	£57,621,031	£57,933,222	£42,318,280	£42,273,449	£24,365,224	£24,305,648	£19,620,610	£19,453,220
<b>STOCK OF ENGINES, &amp; C., PER STATISTICAL RETURN IIa—</b>								
<b>Locomotives—</b>								
Steam .....	8,226	8,450	6,901	7,092	3,754	3,745	1,927	1,999
Electric .....	—	—	13	13	—	—	—	—
Petrol .....	—	—	2	2	—	—	—	—
<b>Rail Motor Vehicles—</b>								
Steam .....	25	27	90	89	23	33	1	—
Electric .....	251	301	86	87	20	20	1,031	1,031
Petrol .....	—	—	3	2	—	—	1	1
Total .....	8,502	8,778	7,095	7,285	3,797	3,798	2,960	3,031
<b>LOCOMOTIVES, &amp; C., COMPLETELY RENEWED PER STATISTICAL RETURN XI—</b>								
<b>Locomotives—</b>								
Steam .....	83	140	17	34	103	80	17	15
Electric .....	—	—	—	—	—	—	—	—
<b>Rail Motor Vehicles—</b>								
Steam .....	—	—	—	—	—	—	—	—
Electric .....	—	—	—	—	—	—	—	112
Petrol .....	—	—	—	—	—	—	1	—
<b>SUPERINTENDENCE (SALARIES, OFFICE EXPENSES)</b>								
Per train-mile .....	0.59d.	0.61d.	0.67d.	0.69d.	0.43d.	0.45d.	0.36d.	0.38d.
<b>LOCOMOTIVES AND TENDERS (STEAM)—</b>								
Complete renewals .....	£610,938	£436,198	£31,171	£139,694	£277,432	£261,465	£41,688	£74,728
Per locomotive completely renewed .....	£7,361	£3,116	£1,834	£4,106	£2,694	£3,268	£2,452	£4,982
Per train-mile (steam) .....	1.07d.	0.76d.	0.07d.	0.33d.	1.09d.	1.03d.	0.26d.	0.46d.
Repairs and Partial Renewals .....	£2,762,598	£2,958,718	£3,116,729	£3,102,482	£1,319,435	£1,370,142	£751,485	£754,934
Per train-mile (steam) .....	4.82d.	5.17d.	7.20d.	7.23d.	5.19d.	5.40d.	4.76d.	4.61d.
Per engine .....	£336	£350	£452	£437	£352	£366	£390	£378
Transfer to or from Renewal Account .....	£185,003	£336,058	£35,205	£28	£6,899	£29,431	£114,312	£98,268
Engine power supplied to and by the Company (balance) .....	Cr. £130,875	Cr. £141,088	Cr. £196,323	Cr. £194,463	Cr. £61,535	Cr. £66,292	Cr. £12,373	Cr. £14,739
Total .....	£3,427,664	£3,589,886	£2,986,782	£3,047,741	£1,542,232	£1,594,746	£895,112	£913,191
Per train-mile (steam) .....	5.98d.	6.28d.	6.90d.	7.10d.	6.07d.	6.28d.	5.03d.	5.58d.
Per engine .....	£417	£425	£433	£430	£411	£426	£465	£457
Per cent. on traffic receipts .....	5.95	6.20	7.06	7.21	6.33	6.56	4.56	4.69

(Continued on next page)

Table 10—Maintenance of Rolling-Stock, Abstract "B," Years 1932 and 1933—Continued

	L.M.S.R.		L.N.E.R.		G.W.R.		Southern	
	1933	1932	1933	1932	1933	1932	1933	1932
<b>LOCOMOTIVES (ELECTRIC)—</b>								
Repairs and partial renewals ....	—	—	£1,073	£857	—	—	—	—
Per train-mile (electric loco.)	—	—	9·67d.	6·35d.	—	—	—	—
Per engine .....	—	—	£83	£66	—	—	—	—
Per cent. on traffic receipts ....	—	—	—	—	—	—	—	—
<b>RAIL MOTOR VEHICLES (STEAM)—</b>								
Complete renewals .....	£172	—	—	—	—	—	—	—
Per vehicle completely renewed	—	—	—	—	—	—	—	—
Per train-mile .....	—	—	—	—	—	—	—	—
Repairs and partial renewals ....	£6,159	£9,804	£37,068	£31,869	£1,598	£3,257	—	—
Per train-mile (steam rail motor)	3·36d.	4·35d.	3·58d.	3·20d.	1·51d.	2·57d.	—	—
Per vehicle (steam rail motor)	£246	£363	£412	£350	£69	£99	—	—
Transfer to Renewal Account....	£2,528	£4,000	£20,301	£22,032	£2,084	£2,840	—	—
Engine power supplied to and by the Company (balance)	—	—	Cr. £10	Cr. £1	Cr. £5	Cr. £68	—	—
Total .....	£8,859	£13,804	£57,359	£53,900	£3,677	£6,029	—	—
Per train-mile (steam rail motor)	4·83d.	6·13d.	5·53d.	5·42d.	3·48d.	4·76d.	—	—
Per vehicle .....	£354	£511	£637	£592	£160	£183	—	—
Per cent. on traffic receipts	0·02	0·02	0·14	0·13	0·02	0·02	—	—
<b>RAIL MOTOR VEHICLES (ELECTRIC)</b>								
Complete renewals .....	Cr. £168	Cr. £2,914	—	—	—	—	£66,470	£397,588
Per vehicle completely renewed	—	—	—	—	—	—	—	—
Per train-mile (electric motor vehicle)	—	0·11d.	—	—	—	—	0·62d.	4·49d.
Repairs and partial renewals ....	£120,177	£118,237	£19,058	£17,872	£9,993	£10,624	£141,233	£165,672
Per train-mile (electric motor vehicle)	4·95d.	4·48d.	3·24d.	3·13d.	6·70d.	7·11d.	1·32d.	1·87d.
Per vehicle .....	£470	£393	£222	£205	£500	£531	£137	£161
Transfer to or from Renewal Account	£46,368	£61,728	£8,615	£8,615	—	—	£65,495	Cr. £281,801
Engine power supplied to and by the Company (balance)	—	—	—	—	—	—	£3,743	£3,709
Total .....	£166,377	£177,051	£27,673	£26,487	£9,993	£10,624	£276,941	£285,169
Per train-mile (electric motor vehicle)	6·85d.	6·71d.	4·70d.	4·65d.	6·70d.	7·11d.	2·60d.	3·22d.
Per vehicle .....	£663	£588	£322	£304	£500	£531	£269	£277
Per cent. on traffic receipts....	0·29	0·31	0·06	0·06	0·04	0·04	1·41	1·47
<b>RAIL MOTOR VEHICLES (PETROL)</b>								
Complete renewals .....	—	—	—	—	—	—	£2,680	—
Per vehicle completely renewed	—	—	—	—	—	—	£2,680	—
Per train-mile (petrol motor vehicle)	—	—	—	—	—	—	36·71d.	—
Repairs and partial renewals....	—	—	—	—	—	—	£214	£51
Per train-mile (petrol motor vehicle)	—	—	—	—	—	—	2·93d.	—
Per vehicle .....	—	—	—	—	—	—	£107	£51
Transfer to or from Renewal Account	—	—	—	—	—	—	Cr. £2,580	£100
Total .....	—	—	—	—	—	—	£314	£151

(Continued on next page)



Table 10—Maintenance of Rolling-Stock, Abstract "B," Years 1932 and 1933—Continued

	L.M.S.R.		L.N.E.R.		G.W.R.		Southern	
	1933	1932	1933	1932	1933	1932	1933	1932
RAIL MOTOR VEHICLES (PETROL)— (contd.)								
Repairs and partial renewals— (contd.)								
Per train mile (petrol motor vehicle)	—	—	—	—	—	—	4·30d.	—
Per vehicle	—	—	—	—	—	—	£157	£151
Per cent. on traffic receipts	—	—	—	—	—	—	—	—
NUMBER OF COACHING VEHICLES (PER STATISTICAL RETURN IIc)	24,456	24,927	19,241	19,531	9,009	9,276	7,991	8,333
COACHING VEHICLES COMPLETELY RENEWED (PER STATISTICAL RETURN XI)	746	735	215	65	170	239	178	302
COACHING VEHICLES (other than Rail Motors) — Complete renewals	£828,635	£668,660	£363,132	£122,867	£266,411	£368,086	£270,626	£402,156
Per vehicle completely re- newed	£1,111	£910	£1,689	£1,890	£1,567	£1,540	£1,520	£1,332
Per coaching train-mile (steam)	2·32d.	1·88d.	1·40d.	0·46d.	1·64d.	2·28d.	2·09d.	2·98d.
Repairs and partial renewals	£944,502	£1,065,470	£1,289,005	£1,260,849	£526,575	£537,162	£480,096	£515,054
Per coaching train-mile (steam)	2·64d.	3·00d.	4·95d.	4·71d.	3·24d.	3·33d.	3·71d.	3·81d.
Per vehicle	£38	£43	£67	£65	£58	£58	£60	£62
Transfer to or from Renewal Account	Cr. £3,573	£158,031	£235,163	£11,307	£3,979	Cr. £95,666	£14,423	Cr. £121,869
Total	£1,769,564	£1,892,161	£1,887,300	£1,395,023	£796,965	£809,582	£765,145	£795,340
Per coaching train-mile (steam)	4·95d.	5·33d.	7·25d.	5·21d.	4·91d.	5·01d.	5·92d.	5·88d.
Per vehicle	£72	£76	£98	£71	£88	£87	£96	£95
Per cent. on passenger train traffic receipts	7·29	7·82	11·97	8·83	7·61	7·69	5·15	5·47
NUMBER OF MERCHANDISE AND MINERAL VEHICLES (PER STATISTICAL RETURN IIc)	272,846	282,571	254,825	263,406	81,329	83,593	34,072	34,746
MERCHANDISE AND MINERAL VEHICLES COMPLETELY RE- NEWED (PER STATISTICAL RETURN XI)	3,094	2,357	875	2,105	1,414	979	956	1,329
MERCHANDISE AND MINERAL VEHICLES— Complete renewals	£425,196	£353,712	£52,186	£223,182	£169,769	£114,816	£115,883	£162,847
Per vehicle completely re- newed	£137	£150	£60	£106	£120	£117	£121	£123
Per goods train-mile	1·97d.	1·62d.	0·30d.	1·33d.	1·85d.	1·24d.	4·04d.	5·70d.
Repairs and partial renewals	£1,097,671	£1,175,582	£1,628,536	£1,500,018	£381,149	£426,577	£154,519	£140,936
Per goods train-mile	5·09d.	5·37d.	9·43d.	8·75d.	4·15d.	4·62d.	5·39d.	4·94d.
Per vehicle	£4·02	£4·16	£6·39	£5·69	£4·69	£5·10	£1·54	£4·06
Transfer to or from Renewal Account	£452,883	£493,433	Cr. £98,738	£3,415	£71,372	£125,247	£14,367	Cr. £31,722
Total	£1,975,750	£2,022,727	£1,581,984	£1,726,615	£622,291	£666,640	£284,769	£272,061
Per goods train-mile	9·16d.	9·25d.	9·16d.	10·08d.	6·77d.	7·23d.	9·93d.	9·53d.
Per vehicle	£7·24	£7·16	£6·21	£6·55	£7·65	£7·97	£8·36	£7·83
Per cent. on goods train traffic receipts	5·93	6·00	5·96	6·52	4·48	4·84	5·99	5·54
TOTAL OF ABSTRACT	£7,703,332	£8,064,249	£6,842,932	£6,557,945	£3,085,352	£3,203,307	£2,316,792	£2,363,387
Per train-mile	12·85d.	13·43d.	15·23d.	14·75d.	12·02d.	12·49d.	8·75d.	9·37d.
Per cent. on traffic receipts	13·37	13·92	16·17	15·51	12·66	13·18	11·81	12·15

Table 11—Rolling-Stock Repairs, Years 1932 and 1933

	L.M.S.R.		L.N.E.R.		G.W.R.		Southern	
	1933	1932	1933	1932	1933	1932	1933	1932
<b>LOCOMOTIVE REPAIRS (Steam)—</b>								
Heavy .....	2,452	2,584	2,572	2,733	1,016	1,111	761	692
Light .....	3,387	4,012	1,598	1,532	898	852	333	409
Total .....	5,839	6,596	4,170	4,265	1,914	1,963	1,094	1,101
Cost .....	£2,762,598	£2,958,718	£3,116,729	£3,102,482	£1,319,435	£1,370,142	£751,485	£754,934
Cost per repair .....	£473	£448	£747	£727	£689	£698	£687	£686
<b>LOCOMOTIVE REPAIRS (Electric)—</b>								
Heavy .....	—	—	2	—	—	—	—	—
Light .....	—	—	1	2	—	—	—	—
Total .....	—	—	3	2	—	—	—	—
Cost .....	—	—	£1,073	£857	—	—	—	—
Cost per repair .....	—	—	£358	£428	—	—	—	—
<b>RAIL MOTOR VEHICLES (Steam)—</b>								
Heavy .....	6	14	41	31	2	5	1	—
Light .....	10	9	104	87	62	111	—	—
Total .....	16	23	145	118	64	116	1	—
Cost .....	£6,159	£9,804	£37,068	£31,869	£1,598	£3,257	£214	£51
Cost per repair .....	£385	£426	£256	£270	£25	£28	£214	—
<b>RAIL MOTOR VEHICLES (Electric)—</b>								
Heavy .....	86	89	12	6	1	5	700	784
Light .....	1,059	1,149	271	243	127	135	1,255	1,136
Total .....	1,145	1,238	283	249	128	140	1,955	†1,934
Cost .....	£120,177	£118,237	£19,058	£17,872	£9,993	£10,624	£141,233	£165,672
Cost per repair .....	£105	£96	£67	£72	£78	£76	£72	£86
<b>CARRIAGE, &amp; C., REPAIRS—</b>								
Heavy .....	639	1,291	4,240	3,987	2,466	1,900	1,152	1,341
Light .....	9,551	10,337	41,232	42,891	10,409	11,736	18,206	18,622
Total .....	10,190	11,628	45,472	46,878	12,875	13,636	19,448	†19,970
Cost .....	£944,562	£1,065,470	£1,289,005	£1,260,849	£526,575	£537,162	£480,096	£515,054
Cost per repair .....	£93	£92	£28	£27	£41	£39	£25	£26
<b>WAGON REPAIRS—</b>								
Heavy .....	16,722	15,969	25,369	21,062	8,000	9,065	1,879	1,681
Light .....	451,703	448,536	534,769	490,819	192,766	189,980	49,739	45,957
Total .....	468,425	464,505	560,138	511,881	200,766	199,045	51,618	47,638
Cost .....	£1,097,671	£1,175,582	£1,628,536	£1,500,018	£381,149	£426,577	£154,519	£140,936
Cost per repair .....	£2·34	£2·53	£2·91	£2·93	£1·90	£2·14	£2·99	£2·96

† Includes 7 carriages converted for electric working in 1932

‡ Includes 14 carriages converted for electric working in 1933

(Continued on next page)

Table 11—Rolling-Stock Repairs, Years 1932 and 1933—Continued

	L.M.S.R.		L.N.E.R.		G.W.R.		Southern	
	1933	1932	1933	1932	1933	1932	1933	1932
ROLLING-STOCK UNDER AND Awaiting REPAIR AT DECEMBER 31—								
Locomotives (steam) ....	593	326	475	509	451	426	157	135
Per cent. of stock ....	7.21	3.86	6.88	7.18	12.01	11.38	8.15	6.80
Locomotives (electric) ....	—	—	—	—	—	—	—	—
Per cent. of stock ....	—	—	—	—	—	—	—	—
Rail motor vehicles (steam) ....	2	2	8	10	1	1	—	*1
Per cent. of stock ....	8.00	7.41	8.60	10.99	4.35	3.03	—	100
Rail motor vehicles (electric) ....	22	18	4	4	—	1	66	64
Per cent. of stock ....	8.76	5.98	4.65	4.60	—	5.00	6.40	6.21
Carriages....	995	792	730	948	405	391	240	235
Per cent. of stock ....	5.56	4.32	5.81	7.41	6.59	6.22	4.05	3.89
Other coaching vehicles ....	291	429	365	548	202	212	109	126
Per cent. of stock ....	4.44	6.52	5.46	8.13	7.05	7.10	5.29	5.49
Wagons ....	11,998	10,634	9,580	14,181	6,348	4,857	733	945
Per cent. of stock ....	4.40	3.76	3.76	5.38	7.81	5.81	2.15	2.72

\* Petrol vehicle.

(Continued from page 753)

or 9.37 per cent. In merchandise (Classes 7—21) only the G.W. is able to show any increase in revenue and that is less than £4,000. In coal all companies continue to show decreased receipts, although the L.N.E. records a trifling increase in tonnage. Livestock is still on the descending scale.

Table 7—Originating Freight Traffic

The originating tonnages in this table under the three main heads of Merchandise, Minerals and Coal corroborate those in the preceding table which deal with both forwarded and received traffic. It is perhaps worth while, however, to compare the aggregate originating tonnages of the four companies last year with similar figures for 1923. They are as follows:—

	ORIGINATING TONNAGE		Decrease Per cent.
	1933	1923	
Merchandise ...	40,721,550	56,875,419	28
Minerals ...	41,641,336	60,426,510	31
Coal ...	159,661,021	217,227,142	26½
	242,023,907	334,529,071	28

In only one case was there an increase in traffic, and that was in originating coal on the Southern Railway, where the tonnage in 1933 was 3,291,070 as against 1,074,845 tons in 1923. This increase is due, of course, to the development of the Kent coalfield, but the total on the Southern Railway was equal to only two per cent. of the total of the group companies.

Looking at individual traffics, it will be seen that where increases have occurred in 1933 in comparison with 1932 they have been mostly in the iron and steel groups. All companies except the L.M.S. also show increases in bricks, but grain traffic is still on the down grade. Oil cake, except for a slight increase on the L.M.S., also shows a reduction, and packed manure is another commodity which continues to fall. The decline in road making and road repairing material indicates the reduction in work on the highways which will probably have to be made good before long. Round timber, including pit props, is down, but sawn timber shows a steady

increase. The L.N.E.R. has an increase of 270,000 tons of vegetables, probably due to the heavier beet crop.

In livestock there has been a general increase in horses, and all companies except the Great Western show an increase in pigs. The Great Western has a forty per cent. decrease. Cattle and sheep, which are, of course, the staple traffics, show all-round decreases, most of which is no doubt due to road competition. Once again we turn to a comparison of 1933 with 1923 to see what inroads have been made in ten years into livestock rail carryings.

ORIGINATING HEADS OF LIVE STOCK CONVEYED BY GOODS TRAIN

			Decrease Per cent.
	1933	1923	
Horses ...	38,134	101,180	62
Cattle ...	2,331,980	3,278,680	29
Calves ...	305,538	501,070	39
Sheep ...	6,900,714	11,000,242	37
Pigs ...	1,357,814	1,987,243	32
Miscellaneous ...	1,627	22,842	93
Total ...	10,935,807	16,891,257	35

These figures show that 35 per cent. of the traffic has been lost in ten years. Livestock traffic is particularly vulnerable to road competition, as anyone attending a cattle market or sheep fair can testify.

Table 8—Expenditure in Respect of Railway Working

We turn now to the expenditure side of the account and find that all companies have reduced their expenditure in respect of railway working, the aggregate saving being £1,923,222 made up as follows:—

			Decrease £	Decrease Per cent.
	1933	1932		
L.M.S.R. ...	48,223,760	49,143,807	920,047	1.87
L.N.E.R. ...	35,211,321	35,633,585	422,264	1.19
G.W.R. ...	20,102,245	20,488,654	386,409	1.89
Southern ...	15,817,952	16,012,454	194,502	1.21
	119,355,278	121,278,500	1,923,222	1.59

In the case of each company there has been a reduction  
(Text continued on page 766)



Table 12—Locomotive Running Expenses, Abstract "C" (Summary), Years 1932 and 1933

	L.M.S.R.		L.N.E.R.		G.W.R.		Southern	
TRAIN-MILES (PER STATISTICAL RETURN XIII)—	1933	1932	1933	1932	1933	1932	1933	1932
Steam, tender and tank engines	137,663,179	137,234,510	103,891,533	102,950,108	61,015,891	60,900,957	37,918,774	39,289,027
Electric traction	5,826,786	6,330,093	1,438,316	1,400,940	357,793	358,437	25,610,944	21,261,778
Steam, petrol, &c., rail motors	440,261	544,521	2,487,521	2,386,540	253,578	303,934	17,610	—
Total	143,930,226	144,109,124	107,817,370	106,737,588	61,627,262	61,563,328	63,547,328	60,550,805
BOOK OF ENGINES, &c. (PER STATISTICAL RETURN II)—								
Engines	8,226	8,450	6,903	7,094	3,754	3,745	1,927	1,999
Electric power vehicles	251	301	*99	*100	20	20	1,031	1,031
Petrol power, &c., rail motor vehicles	25	27	†93	†91	23	33	2	1
Total	8,502	8,778	7,095	7,285	3,797	3,798	2,960	3,031
SUPERINTENDENCE (SALARIES AND OFFICE EXPENSES)								
Per train-mile	0.50d.	0.51d.	0.58d.	0.59d.	0.44d.	0.45d.	0.19d.	0.20d.
Per engine, &c.	£35.03	£34.97	£36.41	£36.19	£29.87	£30.51	£17.02	£17.03
WORKING—								
Steam train	£11,343,022	£11,703,291	£8,907,797	£9,107,916	£4,847,295	£4,977,503	£3,044,265	£3,164,034
Per train-mile	19.71d.	20.39d.	20.10d.	20.75d.	18.99d.	19.52d.	19.27d.	19.33d.
Per engine	£1,375	£1,381	£1,273	£1,268	£1,283	£1,317	£1,580	£1,582
Electric train	£409,885	£410,158	£64,437	£62,656	£45,617	£46,853	£882,961	£764,400
Per train-mile (electric traction)	16.88d.	15.55d.	10.75d.	10.73d.	30.59d.	31.36d.	8.27d.	8.63d.
Per vehicle (electric traction)	£1,633	£1,363	£651	£627	£2,281	£2,344	£856	£742
Petrol rail motor	—	—	—	—	—	—	£136	—
Per train-mile	—	—	—	—	—	—	1.86d.	—
Per vehicle	—	—	—	—	—	—	£68	—
Transfer to or from Renewal Account	Cr. £7,713	Cr. £41,881	£35,145	£30,402	—	—	£5,000	£3,020
Balance of engine power supplied to and by the company	Cr. £431,963	Cr. £456,491	Cr. £558,793	Cr. £553,593	Cr. £186,164	Cr. £198,728	Cr. £28,735	Cr. £35,852
Total of abstract	£11,611,069	£11,922,047	£8,706,914	£8,911,009	£4,820,180	£4,941,491	£3,954,015	£3,947,211
Per train-mile (Total)	19.36d.	19.86d.	19.38d.	20.04d.	18.77d.	19.26d.	14.93d.	15.65d.
Per engine, &c. (Total)	£1,366	£1,358	£1,227	£1,223	£1,269	£1,301	£1,336	£1,302
Per cent. of traffic receipts	20.15	20.58	20.57	21.08	19.78	20.33	20.15	20.29

\* Includes 13 electric engines.

† Includes steam motor vehicles :—1932—89. 1933—90.

Table 13—Locomotive Running Expenses, Abstract "C," Details, Years 1932 and 1933

	L.M.S.R.		L.N.E.R.		G.W.R.		Southern	
STEAM TRAIN WORKING—	1933	1932	1933	1932	1933	1932	1933	1932
Wages connected with the running of locomotive engines	£6,503,802	£6,714,743	£5,332,754	£5,484,189	£3,027,413	£3,132,777	£1,628,698	£1,691,249
Per train-mile	11.30d.	11.70d.	12.03d.	12.50d.	11.86d.	12.28d.	10.31d.	10.33d.
Per engine	£788	£792	£762	£763	£802	£829	£845	£846
Fuel	£4,159,892	£4,263,537	£3,046,014	£3,096,887	£1,562,156	£1,584,212	£1,251,945	£1,301,568
Per train-mile	7.23d.	7.43d.	6.87d.	7.06d.	6.12d.	6.21d.	7.92d.	7.95d.
Per engine	£504	£503	£435	£431	£414	£419	£650	£651

(Continued on next page)

Table 13—Locomotive Running Expenses, Abstract "C," Details, Years 1932 and 1933—Continued

	L.M.S.R.		L.N.E.R.		G.W.R.		Southern	
	1933	1932	1933	1932	1933	1932	1933	1932
<b>STEAM TRAIN WORKING—contd.</b>								
<i>Water</i> ....	£309,703	£340,278	£255,283	£245,996	£105,206	£99,044	£75,420	£78,861
Per train-mile	0·54d.	0·59d.	0·58d.	0·56d.	0·41d.	0·39d.	0·48d.	0·48d.
Per engine	£38	£40	£37	£34	£28	£26	£39	£39
<i>Lubricants</i> ....	£92,209	£84,364	£62,153	£63,034	£39,345	£36,945	£23,383	£24,541
Per train-mile	0·16d.	0·15d.	0·14d.	0·14d.	0·15d.	0·15d.	0·15d.	0·15d.
Per engine	£11	£10	£9	£9	£10	£10	£12	£12
<i>Other stores (including clothing)</i>	£158,386	£173,212	£120,744	£127,721	£73,752	£83,432	£39,656	£42,992
Per train-mile	0·27d.	0·30d.	0·27d.	0·29d.	0·29d.	0·33d.	0·25d.	0·27d.
Per engine	£19	£21	£17	£18	£19	£22	£21	£22
<i>Miscellaneous</i> ....	£119,030	£127,157	£90,849	£90,089	£39,423	£41,094	£25,163	£24,823
Per train-mile	0·21d.	0·22d.	0·21d.	0·20d.	0·16d.	0·16d.	0·16d.	0·15d.
Per engine	£15	£15	£13	£13	£10	£11	£13	£12
<b>ELECTRICAL TRAIN WORKING—</b>								
<i>Wages of motormen</i> ....	£94,858	£87,798	£14,863	£15,060	£8,544	£9,270	£201,334	£171,532
Per train-mile (electric traction)	3·91d.	3·33d.	2·48d.	2·58d.	5·73d.	6·20d.	1·88d.	1·94d.
Per vehicle (electric traction)	£378	£292	£150	£151	£427	£463	£195	£166
<i>Electric current</i> ....	£305,553	£312,455	£47,806	£45,698	£36,718	£37,250	£674,370	£587,268
Per train-mile (electric traction)	12·58d.	11·85d.	7·97d.	7·83d.	24·62d.	24·93d.	6·32d.	6·63d.
Per vehicle (electric traction)	£1,217	£1,038	£483	£457	£1,836	£1,865	£654	£570
<i>Lubricants</i> ....	£3,153	£3,141	£328	£295	£136	£160	£3,760	£2,888
Per train-mile (electric traction)	0·13d.	0·12d.	0·06d.	0·05d.	0·09d.	0·11d.	0·04d.	0·03d.
Per vehicle (electric traction)	£13	£10	£3	£3	£7	£8	£4	£3
<i>Other Stores (including clothing)</i>	£6,321	£6,764	£1,440	£1,603	£219	£173	£3,497	£2,712
Per train-mile (electric traction)	0·26d.	0·25d.	0·24d.	0·27d.	0·15d.	0·12d.	0·03d.	0·03d.
Per vehicle (electric traction)	£25	£23	£15	£16	£11	£8	£3	£3
<b>PETROL, RAIL MOTOR WORKING—</b>								
<i>Wages of motormen</i> ....	—	—	—	—	—	—	£86	—
Per train-mile (petrol rail motor)	—	—	—	—	—	—	1·18d.	—
Per vehicle	—	—	—	—	—	—	£43	—
<i>Petrol</i> ....	—	—	—	—	—	—	£39	—
Per train-mile (petrol rail motor)	—	—	—	—	—	—	0·53d.	—
Per vehicle	—	—	—	—	—	—	£20	—
<i>Lubricants</i> ....	—	—	—	—	—	—	£11	—
Per train-mile (petrol rail motor)	—	—	—	—	—	—	0·15d.	—
Per vehicle	—	—	—	—	—	—	£5	—

Table 14—Traffic Expenses, Abstract "D," Years 1932 and 1933

	L.M.S.R.		L.N.E.R.		G.W.R.		Southern	
	1933	1932	1933	1932	1933	1932	1933	1932
Total traffic receipts per Account No. 10	£57,621,031	£57,933,222	£42,318,280	£42,273,449	£24,365,224	£24,305,648	£19,620,610	£19,453,220
Train mileage per statistical return XIIb	143,612,725	142,101,721	103,240,137	102,178,505	61,452,040	61,389,693	64,650,997	61,652,653
SALARIES AND WAGES—								
Superintendence	£1,093,746	£1,095,440	£1,044,449	£1,077,165	£530,638	£556,634	£345,442	£349,657
Stationmasters and clerks	£4,368,719	£4,489,469	£2,608,629	£2,690,411	£1,283,535	£1,335,116	£912,314	£956,420
Signalmen and gatemen	£1,879,228	£1,904,404	£1,372,515	£1,407,804	£762,554	£782,593	£497,659	£516,292
Ticket collectors, policemen, porters, &c.	£3,951,997	£4,023,110	£2,866,744	£2,944,173	£1,827,477	£1,872,149	£1,348,683	£1,397,064
Guards	£1,412,637	£1,416,361	£1,015,575	£1,052,734	£620,731	£643,032	£413,396	£407,065
Total	£12,706,327	£12,938,784	£8,907,912	£9,172,287	£5,024,935	£5,189,524	£3,517,494	£3,626,498
Per cent. on total traffic receipts	22·05	22·33	21·05	21·70	20·62	21·35	17·93	18·64
FUEL, LIGHTING, WATER AND GENERAL STORES	£492,404	£507,095	£399,713	£417,855	£196,203	£198,759	£189,250	£202,451
Per cent. on total traffic receipts	0·85	0·87	0·94	0·99	0·81	0·82	0·96	1·04
CLOTHING	£116,930	£124,345	£77,526	£90,310	£59,861	£66,517	£65,966	£69,713
Per cent. on total traffic receipts	0·20	0·21	0·18	0·21	0·25	0·27	0·34	0·36
PRINTING, ADVERTISING, STATIONERY, STAMPS AND TICKETS	£530,288	£526,378	£359,950	£384,249	£187,605	£195,896	£215,745	£228,878
Per cent. on total traffic receipts	0·92	0·91	0·85	0·91	0·77	0·81	1·10	1·18
WAGON COVERS, &c.	£154,678	£159,590	£124,671	£144,036	£49,948	£50,081	£16,156	£16,975
Per cent. on total traffic receipts	0·27	0·28	0·30	0·34	0·21	0·21	0·08	0·09
EXPENSES OF JOINT STATIONS AND JUNCTIONS	£26,929	£22,367	Cr. £16,169	Cr. £17,808	£4,349	£2,878	Cr. £9,411	Cr. £8,627
Per cent. on total traffic receipts	0·05	0·04	0·04	0·04	0·02	0·01	0·05	0·04
CLEANSING, LUBRICATING AND LIGHTING OF VEHICLES	£691,858	£724,944	£456,508	£460,351	£262,351	£271,947	£196,578	£217,888
Per cent. on total traffic receipts	1·20	1·25	1·08	1·09	1·08	1·12	1·00	1·12
SHUNTING EXPENSES (OTHER THAN MECHANICAL)—								
Wages	£1,323,157	£1,363,345	£939,445	£982,576	£589,161	£604,775	£253,085	£262,013
Other expenses	£21,010	£22,206	£29,413	£30,397	£5,532	£6,462	£4,972	£4,823
Total	£1,344,167	£1,385,551	£968,858	£1,012,973	£594,693	£611,237	£258,057	£266,836
Per cent. on total traffic receipts	2·33	2·39	2·29	2·39	2·44	2·51	1·32	1·37
WORKING OF STATIONARY ENGINES, HOISTS, CRANES, &c.	£376,052	£403,034	£199,273	£207,907	£71,788	£88,080	£64,449	£65,161
Per cent. on total traffic receipts	0·65	0·70	0·47	0·49	0·29	0·36	0·33	0·33
RAILWAY CLEARING HOUSE EXPENSES	£206,848	£208,654	£150,754	£172,680	£87,745	£91,688	£44,549	£48,898
Per cent. on total traffic receipts	0·36	0·36	0·36	0·41	0·36	0·38	0·23	0·25
PASSENGER TICKET AGENTS' COMMISSION	£84,819	£87,311	£59,673	£58,956	£33,537	£31,982	£63,055	£59,011
Per cent. on total traffic receipts	0·15	0·15	0·14	0·14	0·14	0·13	0·32	0·30
TRANSHIPMENT BY ROAD VEHICLES	£750,433	£647,082	£418,814	£357,198	£326,959	£308,047	£167,853	£150,221
Per cent. on total traffic receipts	1·30	1·12	0·99	0·84	1·34	1·27	0·86	0·77
MISCELLANEOUS EXPENSES	£156,685	£149,141	£127,519	£129,926	£68,863	£64,089	£65,488	£64,245
Per cent. on total traffic receipts	0·27	0·26	0·30	0·31	0·28	0·26	0·33	0·33
COAL, &c., TIPPING EXPENSES	£44,368	£41,237	—	—	—	—	—	—
Per cent. on total traffic receipts	0·08	0·07	—	—	—	—	—	—

(Continued on next page)



Table 14—Traffic Expenses, Abstract "D," Years 1932 and 1933—Continued

	L.M.S.R.		L.N.E.R.		G.W.R.		Southern	
	1933	1932	1933	1932	1933	1932	1933	1932
TRANSFER TO OR FROM RENEWAL ACCOUNT	Cr. £30,672	Cr. £36,887	£21,342	£19,515	Cr. £1,299	£2,412	Cr. £1,647	Cr. £552
Per cent. on total traffic receipts	0.05	0.06	0.05	0.05	0.01	0.01	0.01	—
Total of Abstract	£17,652,114	£17,888,626	£12,256,344	£12,610,435	£6,967,538	£7,173,137	£4,853,582	£5,007,597
Per cent. on total traffic receipts	30.63	30.88	28.96	29.83	28.60	29.51	24.74	25.74
Per train-mile	29.50d.	30.21d.	28.49d.	29.62d.	27.21d.	28.04d.	18.02d.	19.49d.

Table 15—General Charges, Abstract "E," Years 1932 and 1933

	L.M.S.R.		L.N.E.R.		G.W.R.		Southern	
	1933	1932	1933	1932	1933	1932	1933	1932
Gross receipts of the whole undertaking (excluding miscellaneous as per Account No. 8)	£65,291,119	£65,496,079	£48,789,274	£48,678,700	£28,423,656	£28,462,343	£22,598,417	£22,329,066
Train mileage per Statistical Return XIIb	143,612,725	142,101,721	103,240,137	102,178,505	61,452,040	61,389,693	64,650,997	61,652,653
DIRECTORS' FEES VOTED BY SHAREHOLDERS	£26,250	£26,250	£21,000	£21,000	£22,705	£23,228	£16,900	£16,900
Per cent. on gross receipts	0.04	0.04	0.04	0.04	0.08	0.07	0.08	0.08
FEES PAID TO AND EXPENSES OF DIRECTORS ON JOINT COMMITTEES NOT INCLUDED IN ABSTRACT "J"	£286	£343	£198	£201	£427	£456	£742	£740
AUDITORS AND PUBLIC ACCOUNTANTS	£4,686	£4,688	£2,590	£2,588	£3,000	£3,000	£2,633	£2,634
Per cent. on gross receipts	0.01	0.01	—	—	0.01	0.01	0.01	0.01
SALARIES OF SECRETARY, GENERAL MANAGER, ACCOUNTANT AND CLERKS	£464,961	£455,453	£433,600	£453,757	£200,797	£211,814	£218,147	£219,526
Per cent. on gross receipts	0.71	0.69	0.89	0.93	0.71	0.62	0.97	0.98
OFFICE EXPENSES OF SECRETARY, GENERAL MANAGER, ACCOUNTANT AND CLERKS	£50,358	£53,279	£57,449	£50,434	£22,404	£21,724	£25,522	£26,572
Per cent. on gross receipts	0.07	0.08	0.12	0.10	0.08	0.06	0.11	0.12
RATING EXPENSES	£18,741	£17,530	£9,893	£9,418	£6,297	£7,204	£7,579	£6,164
Per cent. on gross receipts	0.03	0.03	0.02	0.02	0.02	0.02	0.04	0.03
INSURANCE	£44,232	£54,701	£75,810	£65,642	—	—	£28,937	£30,683
Per cent. on gross receipts	0.07	0.08	0.16	0.14	—	—	0.13	0.14
SUPERANNUATION AND BENEVOLENT FUNDS, PENSIONS, &C.	£1,538,906	£1,549,081	£763,800	£727,434	£763,938	£729,376	£500,149	£491,435
Per cent. on gross receipts	2.36	2.37	1.57	1.50	2.69	2.12	2.21	2.20
SUBSCRIPTIONS AND DONATIONS...	£45,175	£48,074	£4,905	£5,247	£6,095	£6,192	£3,663	£3,515
Per cent. on gross receipts	0.07	0.07	0.01	0.01	0.02	0.02	0.02	0.02
MISCELLANEOUS EXPENSES	£99,469	£84,072	£38,761	£41,062	£26,237	£24,625	£21,305	£20,939
Per cent. on gross receipts	0.15	0.13	0.08	0.08	0.09	0.07	0.09	0.09
Proportion transferred to other accounts	Cr. £196,742	Cr. £254,627	Cr. £140,419	Cr. £171,556	Cr. £139,938	Cr. £145,511	Cr. £94,591	Cr. £101,431
Total of abstract	£2,096,322	£2,038,844	£1,267,592	£1,205,227	£911,962	£882,108	£730,986	£717,677
Per cent. on gross receipts	3.21	3.11	2.60	2.47	3.21	3.10	3.23	3.21
Per train-mile	3.50d.	3.44d.	2.95d.	2.83d.	3.56d.	3.45d.	2.71d.	2.79d.

Table 16—Receipts and Expenses in Connection with Collection and Delivery of Parcels and Goods, Account No. 16, Years 1932 and 1933

	L.M.S.R.		L.N.E.R.		G.W.R.		Southern	
	1933	1932	1933	1932	1933	1932	1933	1932
GROSS RECEIPTS—								
Passenger train traffic ....	£106,284	£105,457	£82,491	£73,302	£75,861	£65,490	£83,828	£74,932
Goods train traffic ....	£1,872,057	£1,821,520	£989,965	£964,484	£776,600	£736,306	£379,600	£347,528
Miscellaneous ....	£3,752	£3,557	£15,448	£14,511	£11,531	£10,160	£10,814	£10,187
Total ....	£1,982,093	£1,930,534	£1,087,904	£1,052,297	£863,992	£811,956	£474,242	£432,647
No. OF HORSES FOR ROAD VEHICLES, PER STATISTICAL RETURN III	8,286	7,840	3,244	3,714	1,942	1,975	930	942
GOODS AND PARCELS, ROAD VEHICLES, PER STATISTICAL RETURN III—								
Road motors for goods and parcels	2,088	1,952	2,267	1,615	1,704	1,604	453	430
Horse wagons and carts ....	16,602	16,672	6,819	7,679	3,443	3,703	1,313	1,407
Miscellaneous ....	293	237	313	200	162	116	52	43
Total ....	18,983	18,861	9,399	9,494	5,309	5,423	1,818	1,880
SUPERINTENDENCE ....	£45,381	£48,617	£20,603	£23,616	£22,604	£21,921	£5,430	£5,623
Per cent. on gross receipts ....	2.29	2.52	1.89	2.25	2.62	2.70	1.15	1.30
MAINTENANCE OF BUILDINGS ....	£27,592	£26,607	£12,508	£15,433	£10,183	£15,300	£2,252	£2,533
Per cent. on gross receipts ....	1.39	1.38	1.15	1.47	1.18	1.88	0.48	0.59
MAINTENANCE OF MOTOR VEHICLES	£183,973	£203,018	£73,307	£52,330	£105,116	£120,701	£35,659	£41,023
Per motor vehicle ....	£88	£104	£32	£32	£62	£75	£79	£95
Per cent. on gross receipts ....	9.28	10.52	6.74	4.97	12.17	14.87	7.52	9.48
MAINTENANCE OF HORSES ....	£466,048	£483,412	£185,512	£217,503	£126,251	£131,450	£65,100	£75,082
Per horse ....	£56	£62	£57	£59	£65	£67	£70	£80
Per cent. on gross receipts ....	23.51	25.04	17.05	20.67	14.61	16.19	13.73	17.36
MAINTENANCE OF HORSE VEHICLES	£94,900	£99,289	£49,816	£61,933	£22,926	£23,878	£12,574	£14,094
Per horse vehicle ....	£6	£6	£7	£8	£7	£6	£10	£10
Per cent. on gross receipts ....	4.79	5.14	4.58	5.89	2.65	2.94	2.65	3.26
TRAFFIC EXPENSES ....	£1,674,158	£1,656,890	£1,004,346	£962,230	£706,702	£689,633	£297,453	£299,900
Per cent. on gross receipts ....	84.47	85.83	92.32	91.44	81.79	84.93	62.73	69.32
AMOUNT PAID FOR HIRED CARTAGE	£336,979	£283,843	£208,064	£238,645	£168,923	£159,224	£107,886	£86,476
Per cent. on gross receipts ....	17.00	14.70	19.13	22.68	19.55	19.61	22.75	19.99
GENERAL CHARGES ....	£67,625	£67,275	£27,542	£29,895	£32,524	£29,534	£12,825	£15,542
Per cent. on gross receipts ....	3.41	3.48	2.53	2.84	3.76	3.64	2.70	3.59
Rates, INCLUDING RATE RELIEF...	£26,393	£26,066	£15,054	£15,741	£7,407	£7,823	£3,974	£4,147
Per cent. on gross receipts ....	1.33	1.35	1.38	1.50	0.86	0.96	0.84	0.96
LICENCE DUTY ....	£75,517	£75,967	£58,197	£44,863	£58,895	£57,629	£17,841	£17,552
Per cent. on gross receipts ....	3.81	3.93	5.35	4.26	6.82	7.10	3.76	4.06
MISCELLANEOUS ....	£61,945	£61,306	£39,811	£40,043	£29,155	£25,623	£7,316	£7,680
Per cent. on gross receipts ....	3.13	3.18	3.66	3.80	3.38	3.16	1.54	1.77
Transfer to or from Renewal Account	£25,792	£11,299	£95,033	£76,218	£49,177	£29,657	£17,699	£10,939
CARTAGE PERFORMED FOR AND BY OTHER COMPANIES	Cr. £802,995	Cr. £660,488	Cr. £431,249	Cr. £383,340	Cr. £327,532	Cr. £311,726	Cr. £172,287	Cr. £156,481
Per cent. on gross receipts ....	40.51	34.21	39.64	36.43	37.91	38.39	36.33	36.17
TOTAL OF ABSTRACT ....	£2,283,399	£2,383,101	£1,358,544	£1,395,110	£1,012,331	£1,000,647	£413,722	£424,110
Per cent. on gross receipts ....	115.20	123.44	124.88	132.58	117.17	123.24	87.25	98.04

Table 17—Receipts and Payments in respect of Running Power Expenses, Abstract "G," Years 1932 and 1933

	L.M.S.R.		L.N.E.R.		G.W.R.		Southern	
	1933	1932	1933	1932	1933	1932	1933	1932
Passenger train receipts, per Account No. 10	£24,280,869	£24,199,980	£15,770,771	£15,793,937	£10,476,813	£10,525,861	£14,867,676	£14,546,669
PASSENGER TRAIN TRAFFIC—								
Receipts .....	£80,897	£76,335	£97,654	£94,133	£68,969	£69,621	£4,676	£4,644
Per cent. on passenger train receipts	0·33	0·32	0·62	0·60	0·66	0·66	0·03	0·03
Payments .....	£35,278	£34,962	£55,912	£57,972	£12,767	£12,856	£16,464	£30,343
Per cent. on passenger train receipts	0·15	0·14	0·35	0·37	0·12	0·12	0·11	0·21
Goods train receipts, per Account No. 10	£33,340,162	£33,733,242	£26,547,509	£26,479,512	£13,888,411	£13,779,787	£4,752,934	£4,906,551
GOODS TRAIN TRAFFIC—								
Receipts .....	£87,385	£114,697	£135,818	£137,200	£97,152	£93,113	£34,575	£40,467
Per cent. on goods train receipts	0·26	0·34	0·51	0·52	0·70	0·68	0·73	0·82
Payments .....	£112,048	£124,791	£61,525	£82,532	£20,889	£22,007	£44,724	£39,620
Per cent. on goods train receipts	0·34	0·37	0·23	0·31	0·15	0·16	0·94	0·81
TOTAL TRAFFIC RECEIPTS, PER ACCOUNT NO. 10	£57,621,031	£57,933,222	£42,318,280	£42,273,449	£24,365,224	£24,305,648	£19,620,610	£19,453,220
TOTAL—								
Receipts .....	£168,282	£191,032	£233,472	£231,334	£166,121	£162,734	£39,252	£45,111
Per cent. on total traffic receipts	0·29	0·33	0·55	0·55	0·68	0·67	0·20	0·23
Payments .....	£147,326	£159,753	£117,437	£140,505	£33,656	£34,864	£61,188	£69,963
Per cent. on total traffic receipts	0·26	0·28	0·28	0·33	0·14	0·14	0·31	0·36

Table 18—Abstract "H," Mileage, Demurrage and Wagon Hire, Years 1932 and 1933

	L.M.S.R.		L.N.E.R.		G.W.R.		Southern	
	1933	1932	1933	1932	1933	1932	1933	1932
MILEAGE AND DEMURRAGE—								
Passenger train vehicles—								
Receipts .....	£ 31,991	£ 35,368	£ 38,382	£ 36,006	£ 4,092	£ 4,588	£ 20,163	£ 17,431
Expenditure .....	18,153	19,612	18,584	19,193	3,083	3,207	25,519	23,328
Balance .....	Cr. 13,838	Cr. 15,756	Cr. 19,798	Cr. 16,813	Cr. 1,009	Cr. 1,381	Dr. 5,356	Dr. 5,897
Goods train vehicles—								
Receipts .....	32,143	37,399	167,765	151,325	733	327	57,709	53,867
Expenditure .....	3,150	4,161	7,208	7,471	60,427	50,983	70,171	64,786
Balance .....	Cr. 28,993	Cr. 33,238	Cr. 160,557	Cr. 143,854	Dr. 59,694	Dr. 50,656	Dr. 12,462	Dr. 10,919
HIRE—								
Passenger train vehicles—								
Receipts .....	5,831	1,303	11,391	11,207	382	372	859	—
Expenditure .....	34,621	1,500	264	272	—	—	—	—
Balance .....	Dr. 28,790	Dr. 197	Cr. 11,127	Cr. 10,935	Cr. 382	Cr. 372	Cr. 859	—
Goods train vehicles—								
Receipts .....	1,630	699	30,178	24,514	937	2,469	848	969
Expenditure .....	38	119	14,504	16,650	6,145	6,172	33	46
Balance .....	Cr. 1,592	Cr. 580	Cr. 15,674	Cr. 7,864	Dr. 5,208	Dr. 3,703	Cr. 815	Cr. 923
TOTAL—								
Receipts .....	71,595	74,769	247,717	223,051	6,144	7,756	79,579	72,267
Expenditure .....	55,962	25,392	40,560	43,585	69,655	60,362	95,723	88,160
Balance .....	Cr. 15,633	Cr. 49,377	Cr. 207,157	Cr. 179,466	Dr. 63,511	Dr. 52,606	Dr. 16,144	Dr. 15,893



Table 19—Receipts and Expenditure in respect of Steamboats, Years 1932 and 1933

	L.M.S.R.		L.N.E.R.		G.W.R.		Southern	
	1933	1932	1933	1932	1933	1932	1933	1932
GROSS RECEIPTS—								
Passengers .....	£402,280	£413,183	£339,622	£357,485	£123,012	£130,604	£697,132	£663,897
Per cent. of receipts .....	31·84	31·90	52·03	53·00	41·43	41·59	61·55	59·92
Parcels and Mails .....	£158,999	£164,561	£42,493	£84,488	£42,735	£44,643	£209,244	£225,390
Per cent. of receipts .....	12·58	12·70	6·51	12·52	14·39	14·22	18·48	20·34
Merchandise .....	£561,506	£589,420	£230,763	£210,422	£109,660	£110,557	£163,515	£152,494
Per cent. of receipts .....	44·43	45·50	35·36	31·20	36·94	35·21	14·44	13·77
Livestock .....	£92,113	£82,433	£2,006	£2,161	£5,905	£11,187	£3,846	£4,341
Per cent. of receipts .....	7·29	6·36	0·31	0·32	1·99	3·56	0·34	0·39
Miscellaneous .....	£48,814	£45,790	£37,801	£19,960	£15,584	£17,008	£58,855	£61,844
Per cent. of receipts .....	3·86	3·54	5·79	2·96	5·25	5·42	5·19	5·58
Total .....	£1,263,712	£1,295,387	£652,685	£674,516	£296,896	£313,999	£1,132,592	£1,107,966
EXPENDITURE—								
Salaries and wages .....	£445,848	£481,396	£272,987	£278,943	£98,668	£102,886	£344,118	£348,999
Per cent. of expenditure .....	41·28	40·19	36·50	37·17	33·53	34·26	33·93	33·03
Fuel .....	£155,947	£175,610	£106,936	£113,650	£62,335	£63,437	£159,182	£162,963
Per cent. of expenditure .....	14·44	14·66	14·30	15·15	21·18	21·12	15·69	15·42
Stores, lubricants, water, &c. ....	£21,002	£24,429	£18,679	£19,328	£6,305	£6,590	£30,103	£32,371
Per cent. of expenditure .....	1·94	2·04	2·50	2·58	2·15	2·19	2·97	3·06
Renewals .....	£1,605	£154,266	—	—	£61,232	£300,000	£79,064	£105,825
Per cent. of expenditure .....	0·15	12·88	—	—	20·81	99·90	7·80	10·01
Repairs .....	£74,866	£120,853	£74,676	£81,072	£22,872	£20,589	£131,815	£159,479
Per cent. of expenditure .....	6·93	10·09	9·98	10·80	7·77	6·85	13·00	15·09
Insurance .....	£29,947	£35,011	£22,879	£20,000	£8,682	£10,844	£16,752	£16,365
Per cent. of expenditure .....	2·77	2·92	3·06	2·67	2·95	3·61	1·65	1·55
Harbour fees and Light dues .....	£121,982	£122,868	£66,081	£65,630	£36,147	£36,334	£86,140	£79,330
Per cent. of expenditure .....	11·30	10·26	8·83	8·75	12·28	12·10	8·49	7·51
General Charges .....	£37,408	£45,141	£15,368	£19,004	£10,308	£11,320	£39,380	£39,803
Per cent. of expenditure .....	3·46	3·77	2·05	2·53	3·50	3·77	3·88	3·77
Miscellaneous .....	£64,748	£63,895	£83,228	£79,970	£13,864	£14,757	£66,025	£73,575
Per cent. of expenditure .....	6·00	5·33	11·13	1·066	4·71	4·91	6·51	6·96
TOTAL WORKING EXPENSES .....	£953,353	£1,223,469	£660,834	£677,597	£320,413	£566,757	£952,579	£1,018,710
Per cent. of expenditure .....	88·27	102·14	88·35	89·49	108·88	188·71	93·92	96·40
Transfer to or from Renewal Account .....	£126,706	Cr. £25,590	£87,165	£72,760	Cr. £26,130	Cr. £266,407	£61,690	£38,036
Per cent. of expenditure .....	11·73	2·14	11·65	9·69	8·88	88·71	6·08	3·60
TOTAL EXPENDITURE .....	£1,080,059	£1,197,879	£747,999	£750,357	£294,283	£300,350	£1,014,269	£1,056,746
Per cent. on gross receipts .....	85·47	92·47	114·60	111·25	99·12	95·65	89·55	95·38
BALANCE—								
Profit .....	£183,653	£97,508	loss £95,314	loss £75,841	£2,613	£13,649	£118,323	£51,220
Per cent. on gross receipts .....	14·53	7·53	—	—	0·88	4·35	10·45	4·62

Table 20—Receipts and Expenditure in respect of Canals, Years 1932 and 1933

	L.M.S.R.		L.N.E.R.		G.W.R.		Southern	
	1933	1932	1933	1932	1933	1932	1933	1932
MILES OF NAVIGATION, PER STATISTICAL RETURN V.	537	537	246	246	211	211	4½	4½
Gross receipts .....	£116,273	£120,620	£35,316	£36,511	£14,149	£14,914	£2,452	£2,218
Per mile of navigation .....	£217	£225	£144	£148	£67	£71	£545	£493
EXPENDITURE—								
Superintendence .....	£3,080	£3,007	£355	£377	£195	£253	£137	£132
Wages of toll clerks, lock-keepers, &c. ....	£12,220	£14,109	£4,212	£4,326	£499	£576	£150	£152
Maintenance of canals and water supply .....	£88,854	£91,858	£35,826	£35,294	£30,333	£35,296	£849	£1,139
Rates, including rate relief .....	£8,610	£9,032	£4,849	£5,112	£1,683	£1,695	£56	£37
Miscellaneous .....	£11,034	£12,007	£2,276	£2,885	£1,314	£1,444	£25	£20
General charges .....	£4,870	£4,203	£1,008	£1,055	£672	£514	£29	£80
Transfer from Renewal Account	Cr. £2,631	£1,251	—	—	—	—	—	—
TOTAL .....	£126,037	£135,467	£48,526	£49,049	£34,696	£39,778	£1,246	£1,560
Per mile of navigation .....	£235	£252	£197	£199	£164	£189	£277	£347
Per cent. on gross receipts .....	108	112	137	134	245	267	51	70
BALANCE—								
Profit .....	—	—	—	—	—	—	£1,206	£858
Loss .....	£9,764	£14,847	£13,210	£12,538	£20,547	£24,864	—	—

(Continued from page 758)

in the ratio of working expenses to receipts and in the cost per train-mile.

Table 9—Maintenance and Renewal of Way and Works

All companies except the L.N.E.R. have renewed a smaller mileage of track than in 1932, and in every case there is a reduction in the cost per mile of track renewed. There are general reductions in the cost of maintenance of roads, bridges and works and, except in the case of the Southern, the cost of repairs and partial renewals of track is also down. The L.N.E.R. has spent £25,000 more on signalling, but the other companies have reduced expenses under this head, the reduction in the case of the Southern being £154,000. Telegraph cost is up on the L.N.E.R. and G.W.R. but down in the case of the other two companies. All companies have made substantial reductions in the cost of maintenance of stations and buildings. The L.M.S. and G.W. Companies have taken from reserve £390,000 and £290,000 respectively, but the Southern has carried £285,000 to reserve. Smaller quantities of rails and sleepers have been used by all companies during the year.

Table 10—Maintenance of Rolling Stock

There has been a marked reduction in the stock of steam locomotives since 1923, the figures being as follows:—

	1933	1923	Decrease
L.M.S.R. ...	8,226	10,292	2,066
L.N.E.R. ...	6,901	7385	484
G.W.R. ...	3,754	3,944	190
Southern ...	1,927	2,258	331
	20,808	23,879	3,071

On the other hand the Southern Company has increased its stock of electric power vehicles from 251 to 1,031, and the L.N.E.R. has 90 steam rail motor vehicles as against 6 in 1923.

The L.M.S. has renewed only 83 steam locomotives as compared with 140 in the previous year, and the L.N.E.R. 17 as compared with 34, but the G.W. complete renewals

have increased from 80 to 103 and the Southern from 15 to 17. There is very considerable variation in the costs per locomotive completely renewed both between the companies themselves and in comparison with the previous year.

The L.N.E.R. has renewed 150 more coaching vehicles than in 1932, but on the G.W. and Southern there are substantial reductions. The total L.N.E.R. cost of maintenance and renewal of coaching stock has increased by nearly £500,000, but the other companies all show decreases. On the other hand, the L.N.E.R. has cut down its wagon renewal programme severely, the total number of wagons completely renewed being only 875 as compared with 2,105 in 1932. The Southern renewals have also been reduced by 373 wagons but the L.M.S. and G.W. have renewed 737 and 435 more respectively.

Taking the abstract as a whole, the principal features are a decrease of £360,000 on the L.M.S. and an increase of £285,000 on the L.N.E.R.

Table 11—Rolling Stock Repairs

There is an all-round reduction in the number of locomotive repairs, but the average cost per repair shows a slight increase except on the G.W.R. Carriage repairs do not show any marked change, but the number of wagon repairs shows some increase, although the average cost per repair is slightly lower. The percentages of vehicles under and awaiting repair do not show any very marked changes.

Tables 12 and 13—Locomotive Running Expenses

All companies except the Southern have managed to effect reductions in working costs. The Southern has, however, run three million more train-miles due to further electrification, and its cost per train-mile is reduced from 15.65d. to 14.93d. The costs per train-mile of the other companies are substantially higher in comparison with the Southern due to their higher proportion of freight traffic, but all three have brought their costs below those of 1932. Taking electric traction alone, whilst the expenditure on the Southern was £118,500 more last year, the cost per train-mile was reduced from 8.63d. to 8.27d., a figure well below that of the other companies, and in fact less than half that of the L.M.S.R.

**Table 14—Traffic Expenses**

Economies still continue to be made in salaries and wages, and, including the wages of shunters, amounted in the aggregate to nearly £900,000. Economies have also been effected all round in fuel, lighting, water, general stores and clothing, and except in the case of the L.M.S. in printing, stationery and postage. In fact, taking the abstract as a whole there has been a reduction in cost in nearly every item except in the case of expenses which vary directly with the traffic, such as passenger ticket agents' commission and transhipment by road vehicles.

**Table 15—General Charges**

There is a general increase in expenditure mainly falling under the item of contributions to superannuation and benevolent funds and pensions.

**Table 16—Receipts and Expenses in Connection with Collection and Delivery of Parcels and Goods**

It will be seen that receipts have increased all round while expenses have diminished, except on the G.W.R. Losses have been reduced correspondingly, viz., £150,000 on the

L.M.S., £70,000 on the L.N.E.R. and £40,000 on the G.W.R., whilst the Southern Company has increased its net receipts by £52,000.

Vehicle maintenance costs and horse maintenance costs in proportion to the numbers employed show general reductions.

Increases are shown in the number of road motor vehicles particularly on the L.N.E.R. and reductions have been made in the number of horse wagons and carts. The L.M.S. shows, however, an increase of 446 in its stock of horses. The other companies show decreases.

The comparative figures of horses, horse vehicles and road motors in 1923 and 1933 are interesting:—

	1923	Horses	Horse Vehicles	Road Motors
L.M.S.R. ...	...	9,370	19,432	1,357
L.N.E.R. ...	...	4,642	6,989	198
G.W.R. ...	...	2,606	3,974	392
Southern ...	...	1,465	1,932	140
Total ...	...	18,083	32,327	2,087

(Text continued on page 770)

**Table 21—Receipts and Expenditure in respect of Road Transport, Years 1932 and 1933**

	L.M.S.R.		L.N.E.R.		G.W.R.		Southern	
	1933	1932	1933	1932	1933	1932	1933	1932
<b>GROSS RECEIPTS:</b>								
Passenger Services—								
Passengers .....	£188,992	£193,361	£76,851	£78,192	£2,252	£4,294	£2,467	£2,400
Other Receipts .....	£898	£14,442	£321	£298	—	£164	—	—
Goods Services .....	£123,757	£87,454	£59,731	£35,055	£63,124	£44,240	£17,904	£12,345
Hire of Vehicles—								
Passenger .....	£1,836	£901	—	—	—	—	—	—
Miscellaneous .....	£315	£714	£49	£34	£63	£35	£24	£12
<b>TOTAL</b> .....	<b>£315,798</b>	<b>£296,872</b>	<b>£136,952</b>	<b>£113,579</b>	<b>£65,439</b>	<b>£48,733</b>	<b>£20,395</b>	<b>£14,757</b>
<b>EXPENDITURE:</b>								
Superintendence .....	£6,698	£6,022	£3,314	£2,561	£1,624	£1,294	£126	£92
Maintenance of Buildings .....	£3,483	£3,345	£1,908	£2,020	£540	£649	£76	£60
Maintenance of Motor Vehicles .....	£71,185	£67,642	£19,392	£16,797	£7,288	£7,687	£2,360	£2,049
Maintenance of Horses .....	£1,779	£1,547	£1,030	£1,116	£229	£166	—	—
Maintenance of Horse Vehicles .....	£383	£394	£284	£230	£53	£38	—	—
Traffic Expenses .....	£146,218	£140,187	£82,133	£60,453	£31,635	£22,401	£9,958	£6,336
Hire of Vehicles .....	£43	£28	£3,070	£1,992	—	£2	£37	£100
General Charges .....	£3,899	£10,345	£2,242	£3,224	£1,690	£1,647	£379	£530
Rates .....	£1,003	£869	£393	£418	£10	£6	£92	£66
Licence Duty .....	£13,695	£12,277	£7,834	£6,055	£4,433	£3,345	£1,034	£748
Miscellaneous .....	£7,975	£7,020	£10,391	£4,173	£1,626	£1,389	£189	£140
Road Transport for and by other Railway Companies and Undertakings	£984	£3,657	Cr. £28,258	Cr. £13,588	£71	Cr. £26	Cr. £3	—
Transfer to or from Renewal Account	£10,455	£12,848	£18,397	£14,179	£3,648	£1,248	£608	£363
<b>TOTAL</b> .....	<b>£267,800</b>	<b>£266,181</b>	<b>£122,130</b>	<b>£99,630</b>	<b>£52,847</b>	<b>£39,846</b>	<b>£14,856</b>	<b>£10,484</b>
Per cent. of gross receipts .....	84·80	89·66	89·19	87·72	80·76	81·76	72·84	71·04
<b>BALANCE</b>								
Profit .....	£47,998	£30,691	£14,822	£13,949	£12,592	£8,887	£5,539	£4,273
Loss .....	—	—	—	—	—	—	—	—



Table 22—Receipts and Expenditure in Respect of Docks, Harbours and Wharves, Years 1932 and 1933

	L.M.S.R.		L.N.E.R.		G.W.R.		Southern	
	1933	1932	1933	1932	1933	1932	1933	1932
<b>GROSS RECEIPTS—</b>								
<i>Harbour and light dues</i> ....	£62,140	£68,542	£22,907	£25,955	£25,059	£26,394	£66,019	£63,501
Per cent. of receipts ....	7·92	8·94	0·91	1·04	1·27	1·25	6·48	6·36
<i>Dock dues on ships</i> ....	£71,057	£71,838	£462,204	£440,446	£496,350	£534,379	£264,740	£255,700
Per cent. of receipts ....	9·06	9·37	18·33	17·70	25·18	25·28	25·99	25·63
<i>Dock dues on goods</i> ....	£103,746	£100,421	£272,895	£267,400	£416,079	£442,205	£65,168	£60,722
Per cent. of receipts ....	13·22	13·09	10·82	10·75	21·11	20·92	6·40	6·08
<i>Dock dues on passengers</i> ....	£210	£123	£563	£707	£6,886	£7,258	£17,230	£17,074
Per cent. of receipts ....	0·03	0·02	0·02	0·03	0·35	0·34	1·69	1·71
<i>Wharf and pier dues</i> ....	£16,302	£15,298	£118,478	£115,779	£8,471	£8,305	£24,291	£25,347
Per cent. of receipts ....	2·08	1·99	4·70	4·65	0·43	0·39	2·38	2·54
<i>Dock railways</i> ....	£141,836	£135,594	£468,204	£476,210	£92,339	£99,714	£56,717	£55,646
Per cent. of receipts ....	18·08	17·68	18·57	19·14	4·68	4·72	5·57	5·58
<i>Craneage and other services</i> ....	£335,636	£313,974	£890,329	£860,186	£782,197	£849,990	£353,070	£348,240
Per cent. of receipts ....	42·78	40·94	35·32	34·58	39·68	40·21	34·66	34·90
<i>Graving docks</i> ....	£8,820	£9,754	£38,466	£38,326	£9,007	£7,049	£66,258	£62,942
Per cent. of receipts ....	1·12	1·27	1·53	1·54	0·45	0·33	6·51	6·31
<i>Warehousing</i> ....	£7,789	£10,024	£43,555	£59,424	£10,251	£12,133	£8,642	£10,534
Per cent. of receipts ....	0·99	1·31	1·73	2·39	0·52	0·57	0·85	1·06
<i>Rents</i> ....	£23,108	£26,708	£101,562	£105,960	£81,184	£81,269	£53,486	£53,748
Per cent. of receipts ....	2·94	3·48	4·03	4·26	4·12	3·85	5·25	5·39
<i>Miscellaneous</i> ....	£13,964	£14,656	£101,825	£97,563	£43,616	£45,199	£43,027	£44,337
Per cent. of receipts ....	1·78	1·91	4·04	3·92	2·21	2·14	4·22	4·44
<b>Total</b> ....	£784,608	£766,932	£2,520,988	£2,487,956	£1,971,439	£2,113,896	£1,018,648	£997,791
<b>EXPENDITURE—</b>								
<i>Superintendence</i> ....	£39,423	£40,593	£74,690	£78,032	£58,549	£62,188	£15,762	£15,680
Per cent. of expenditure ....	4·64	4·76	3·08	3·20	3·07	3·17	2·17	2·13
<i>Maintenance</i> ....	£112,628	£136,993	£445,756	£485,683	£497,522	£571,024	£98,592	£136,758
Per cent. of expenditure ....	13·26	16·06	18·38	19·94	26·11	29·14	13·59	18·55
<i>Dredging</i> ....	£108,919	£109,868	£119,538	£108,979	£91,218	£71,447	£113,029	£86,671
Per cent. of expenditure ....	12·82	12·88	4·93	4·47	4·79	3·65	15·57	11·76
<i>Operating expenses</i> ....	£445,727	£431,350	£1,276,656	£1,309,721	£941,591	£1,042,105	£363,989	£360,984
Per cent. of expenditure ....	52·47	50·58	52·64	53·77	49·42	53·19	50·15	48·97
<i>Rates, including Rate Relief</i> ....	£54,882	£55,580	£136,626	£132,139	£196,160	£195,973	£29,682	£29,708
Per cent. of expenditure ....	6·46	6·52	5·63	5·43	10·30	10·00	4·09	4·03
<i>General charges</i> ....	£26,455	£26,726	£60,342	£70,188	£80,094	£76,255	£34,982	£35,845
Per cent. of expenditure ....	3·12	3·13	2·49	2·88	4·21	3·89	4·82	4·86
<i>Miscellaneous</i> ....	£35,022	£38,888	£117,042	£122,433	£75,071	£91,686	£40,059	£40,399
Per cent. of expenditure ....	4·12	4·56	4·82	5·03	3·94	4·68	5·52	5·48
<i>Transfer to or from Suspense Account</i> ....	£26,431	£12,886	£194,749	£128,569	Cr. £35,017	Cr. £151,324	£29,695	£31,108
Per cent. of expenditure ....	3·11	1·51	8·03	5·28	1·84	7·72	4·09	4·22
<b>Total</b> ....	£849,487	£852,884	£2,425,399	£2,435,744	£1,905,188	£1,959,355	£725,790	£737,162
Per cent. on gross receipts ....	108·27	111·21	96·21	97·90	96·64	92·69	71·25	73·88
<b>Net receipts from docks, harbours and wharves</b> ....	loss £64,879	loss £85,952	£95,589	£52,212	£66,251	£154,541	£292,858	£260,629

Table 23—Receipts and Expenditure in Respect of Hotels and of Refreshment Rooms and Cars where Catering is carried on by the Company, Years 1932 and 1933

	L.M.S.R.		L.N.E.R.		G.W.R.		Southern	
	1933	1932	1933	1932	1933	1932	1933	1932
<b>RECEIPTS—</b>								
Total receipts from hotels and sale of provisions, &c., in the refreshment rooms and cars	£2,636,945	£2,566,196	£1,667,924	£1,665,281	£637,826	£645,894	£104,263	£101,137
<b>EXPENDITURE—</b>								
<i>Salaries and wages</i> ....	£569,633	£566,029	£318,428	£320,038	£127,658	£129,250	£19,805	£19,879
Per cent. of expenditure ....	24·24	24·30	20·13	19·81	22·76	21·48	18·89	18·60
Per cent. on gross receipts ....	21·60	22·06	19·09	19·22	20·02	20·01	18·99	19·66
<i>Provisions, wines and spirits consumed</i>	£1,127,945	£1,087,016	£853,482	£865,874	£313,030	£332,153	£46,441	£47,670
Per cent. of expenditure ....	47·99	46·67	53·94	53·59	55·80	55·20	44·29	44·60
Per cent. on gross receipts ....	42·78	42·36	51·17	52·00	49·08	51·43	44·53	47·13
<i>Maintenance of hotels and refreshment rooms and fittings, furniture, &amp;c., of refreshment cars</i>	£243,665	£197,150	£154,370	£124,355	£27,490	£32,523	£10,508	£11,972
Per cent. of expenditure ....	10·37	8·46	9·76	7·70	4·90	5·41	10·02	11·20
Per cent. on gross receipts ....	9·24	7·68	9·26	7·47	4·31	5·04	10·08	11·84
<i>Heating and lighting of hotels and refreshment rooms</i>	£87,565	£90,455	£50,247	£54,946	£15,597	£16,888	£5,790	£5,837
Per cent. of expenditure ....	3·72	3·88	3·18	3·40	2·78	2·81	5·52	5·46
Per cent. on gross receipts ....	3·32	3·53	3·01	3·30	2·44	2·61	5·56	5·77
<i>Rents</i> ....	£33,993	£31,123	£40,396	£44,172	£21,256	£20,282	—	—
Per cent. of expenditure ....	1·45	1·34	2·55	2·74	3·79	3·37	—	—
Per cent. on gross receipts ....	1·29	1·21	2·42	2·65	3·33	3·14	—	—
<i>Rates</i> ....	£67,394	£66,816	£37,403	£38,799	£11,795	£11,979	£3,038	£3,005
Per cent. of expenditure ....	2·87	2·87	2·36	2·40	2·10	1·99	2·90	2·81
Per cent. on gross receipts ....	2·56	2·60	2·24	2·33	1·85	1·85	2·92	2·97
<i>Licence Duty</i> ....	£9,842	£9,995	£7,806	£8,289	£4,003	£3,725	£482	£493
Per cent. of expenditure ....	0·42	0·43	0·49	0·51	0·72	0·62	0·46	0·47
Per cent. on gross receipts ....	0·37	0·39	0·47	0·50	0·63	0·58	0·46	0·49
<i>General Charges</i> ....	£49,029	£89,426	£32,891	£47,020	£10,621	£23,463	£2,762	£3,633
Per cent. of expenditure ....	2·09	3·84	2·08	2·91	1·89	3·90	2·63	3·40
Per cent. on gross receipts ....	1·86	3·49	1·97	2·82	1·66	3·63	2·65	3·59
<i>Miscellaneous</i> ....	£189,802	£191,729	£101,865	£103,776	£29,513	£31,398	£9,853	£9,736
Per cent. of expenditure ....	8·07	8·23	6·44	6·42	5·26	5·22	9·40	9·11
Per cent. on gross receipts ....	7·20	7·47	6·11	6·23	4·63	4·86	9·45	9·62
<i>Transfer to or from Suspense Account</i>	Cr. £28,631	Cr. £490	Cr. £14,644	£8,417	—	—	£6,172	£4,650
<b>TOTAL EXPENDITURE</b> ....	£2,350,237	£2,329,249	£1,582,244	£1,615,686	£560,963	£601,661	£104,851	£106,875
Per cent. of receipts ....	89·13	90·77	94·86	97·02	87·95	93·15	100·56	105·67
<b>Balance—</b>								
Profit ....	£286,708	£236,946	£85,680	£49,595	£76,863	£44,233	loss £588	loss £5,738
Percentage of profit to gross receipts	10·87	9·23	5·14	2·98	12·05	6·85	—	—

Table 24—Mileage of Lines Open for Traffic and Receipts per Route Mile, Years 1932 and 1933

	L.M.S.R.		L.N.E.R.		G.W.R.		Southern	
	1933	1932	1933	1932	1933	1932	1933	1932
<b>MILEAGE OF LINES OPEN FOR TRAFFIC (PER STATISTICAL RETURN 1A)—</b>								
<i>Lines owned by the Company, including Company's share of Lines Jointly Owned other than those included in Abstract "J"—</i>								
Length of road ....	6,938	6,944	6,371	6,372	3,787	3,793	2,164	2,164
Total miles reduced to single track	13,396	13,394	11,495	11,470	6,464	6,435	4,135	4,135
Sidings reduced to single track	6,013	6,021	5,321	5,284	2,598	2,581	1,260	1,260
Total of single track (including sidings)	19,409	19,415	16,816	16,754	9,062	9,016	5,395	5,395
<i>Lines leased or worked—</i>								
Length of road ....	3	3	12	12	8	8	30	30
Total miles reduced to single track	4	4	25	25	9	9	31	31
Sidings reduced to single track	1	1	1	1	4	4	6	6
Total of single track (including sidings)	5	5	26	26	13	13	37	37
<b>TOTAL—</b>								
Length of road ....	6,941	6,947	6,383	6,384	3,795	3,801	2,194	2,194
Total miles reduced to single track	13,400	13,398	11,520	11,495	6,473	6,444	4,166	4,166
Sidings reduced to single track	6,014	6,022	5,322	5,285	2,602	2,586	1,266	1,266
Total of single track (including sidings)	19,414	19,420	16,842	16,780	9,075	9,030	5,432	5,432
PASSENGER TRAIN RECEIPTS. PER ACCOUNT NO. 10	£24,280,869	£24,199,980	£15,770,771	£15,793,937	£10,476,813	£10,525,861	£14,867,676	£14,546,669
Per route mile ....	£3,498	£3,483	£2,471	£2,474	£2,761	£2,769	£6,777	£6,630
GOODS TRAIN RECEIPTS. PER ACCOUNT NO. 10	£33,340,162	£33,733,242	£26,547,509	£26,479,512	£13,888,411	£13,779,787	£4,752,934	£4,906,551
Per route mile ....	£4,804	£4,856	£4,159	£4,148	£3,659	£3,625	£2,166	£2,237
TOTAL TRAFFIC RECEIPTS. PER ACCOUNT NO. 10	£57,621,031	£57,933,222	£42,318,280	£42,273,449	£24,365,224	£24,305,648	£19,620,610	£19,453,220
Per route mile ....	£8,302	£8,339	£6,630	£6,622	£6,420	£6,394	£8,943	£8,867
TOTAL RAILWAY RECEIPTS. PER ACCOUNT NO. 10	£58,185,439	£58,507,261	£42,687,504	£42,648,559	£24,572,250	£24,512,951	£19,845,825	£19,672,548
Per route mile ....	£8,383	£8,422	£6,688	£6,681	£6,475	£6,449	£9,046	£8,967

(Continued from page 767)

1933	Horses	Horse Vehicles	Road Motors
L.M.S.R. ....	8,286	16,602	2,088
L.N.E.R. ....	3,244	6,819	2,267
G.W.R. ....	1,942	3,443	1,704
Southern ....	930	1,313	453
	14,402	28,177	6,512

Table 17—Receipts and Payments in Respect of Running Power Expenses

The only change of moment in respect of passenger trains traffic is that the Southern Company's payments have diminished by nearly one half, viz., from £30,343 to £16,464. On the goods train side the tendency towards a reduction both in receipts and payments continues.

Table 18—Mileage, Demurrage and Wagon Hire

The main feature in this table is an increased credit to the L.N.E. Company of £17,000 in mileage and demurrage and of £8,000 in hire in respect of goods train vehicles. On the L.M.S. the credit balance has been reduced by £34,000 mainly in respect of Hire of passenger train vehicles.

Table 19—Receipts and Expenditure in Respect of Steamboats

All companies except the Southern show some reduction in revenue, the increase on the Southern being no doubt due to a revival in passenger travel to and from the Continent. On the expenditure side the L.M.S. has saved £150,000 on renewals and £45,000 on repairs, but has transferred £126,000 to the renewal fund, whereas in 1932 £25,000 was drawn from the fund. The profit has been increased by £86,000. The



L.N.E.R. profits are reduced by £20,000. The G.W.R. has spent £240,000 less on renewals and has drawn a corresponding amount less from the reserve fund. Its profits are diminished by £11,000. On the Southern repairs and renewals have been reduced by £55,000 and profits are increased by £67,000.

**Table 20—Receipts and Expenditure in Respect of Canals**

There is very little change in the position. Receipts and expenses are both slightly down, but all companies except the Southern continue to work their canal undertakings at a loss.

**Table 21—Receipts and Expenditure in Respect of Road Transport**

All companies show increases in receipts, but expenses except on the L.M.S. have increased pro rata. All companies have made a profit on the year's working and the L.M.S. has increased its net receipts by £17,000.

**Table 22—Receipts and Expenditure in Respect of Docks, Harbours and Wharves**

All companies except the G.W. record modest increases in receipts, but the G.W. revenue is down by £142,000 chiefly in dock dues, and cranaage and other services. It has, however, spent £74,000 less on maintenance and

**Table 25—Stock of Coaching Vehicles, Number of Passengers Carried, and Number of Season Ticket Holders, Years 1932 and 1933**

	L.M.S.R.		L.N.E.R.		G.W.R.		Southern	
	1933	1932	1933	1932	1933	1932	1933	1932
<b>NUMBER OF PASSENGER CARRIAGES (PER STATISTICAL RETURN II)—</b>								
Steam .....	17,518	17,943	12,500	12,736	6,102	6,250	4,966	5,072
Electric .....	628	709	141	142	60	60	1,995	1,995
Rail motor .....	25	27	93	91	23	33	2	1
Total .....	18,171	18,679	12,734	12,969	6,185	6,343	6,963	7,068
<b>NUMBER OF SEATS OR BERTHS (PER STATISTICAL RETURN II)</b>								
<i>Steam—</i>								
First .....	123,056	124,874	79,057	81,357	38,956	38,977	44,828	47,042
Second .....	1,644	2,272	46,616	46,876	—	—	1,416	1,466
Third .....	920,745	930,941	551,669	560,203	307,937	313,631	209,044	212,224
Electric .....	43,930	46,416	8,400	8,444	2,680	2,680	151,108	151,102
Rail motor .....	1,224	1,344	5,519	5,395	1,284	1,841	69	25
Total .....	1,090,599	1,105,847	691,261	702,275	350,857	357,129	406,465	411,859
<b>NUMBER OF PASSENGERS CONVEYED (PER STATISTICAL RETURN XIII)—</b>								
Excluding season ticket holders	288,902,847	277,513,929	186,900,207	182,404,343	108,552,728	108,345,164	213,268,465	207,285,699
Estimated number of journeys by season ticket holders	130,510,800	129,987,000	92,248,800	97,342,200	40,018,800	41,930,400	111,058,800	109,843,200
Total .....	419,413,647	407,500,929	279,149,007	279,746,543	148,571,528	150,275,564	324,327,265	317,128,899
Per carriage .....	23,081	21,816	21,922	21,570	24,021	23,692	46,579	44,868
Per seat .....	385	368	404	398	423	421	798	770
<b>NUMBER OF OTHER COACHING VEHICLES—</b>								
Post Office vans .....	78	83	27	30	43	37	22	24
Luggage, parcel, milk, fruit and brake vans	2,637	2,594	1,442	1,454	1,386	1,460	1,343	1,509
Fish vans and trucks .....	920	941	3,198	3,110	363	363	—	—
Carriage trucks .....	1,613	1,650	642	677	273	277	178	208
Horse boxes .....	1,111	1,119	1,334	1,421	740	793	443	489
Miscellaneous .....	202	189	43	48	62	56	75	67
Total .....	6,561	6,576	6,686	6,740	2,867	2,986	2,061	2,297
Total coaching vehicles, including electric stock and rail motor vehicles	24,732	25,255	19,420	19,709	9,052	9,329	9,024	9,365

Table 26—Stock of Goods Train Vehicles and the Tonnage of Merchandise and Mineral Traffic Conveyed, Years 1932 and 1933

	L.M.S.R.		L.N.E.R.		G.W.R.		Southern	
	1933	1932	1933	1932	1933	1932	1933	1932
<b>NUMBER OF MERCHANDISE AND MINERAL WAGONS (PER STATISTICAL RETURN IId)—</b>								
Open .....	144,656	152,705	109,275	114,202	48,521	51,025	24,469	25,325
Covered .....	43,775	42,693	33,723	34,979	21,762	21,483	5,054	5,053
Special .....	2,811	1,828	4,358	4,194	1,341	1,142	709	451
Rail and timber (including twin trucks)	6,724	6,943	12,827	13,197	2,738	2,829	912	1,007
Mineral .....	61,317	65,212	83,973	85,584	1,501	1,611	851	741
Total .....	259,283	269,381	244,156	252,156	75,863	78,090	31,995	32,577
<b>NUMBER OF ORIGINATING TONS CONVEYED (EXCLUDING COAL AND COKE). (PER STATISTICAL RETURN XIV.)</b>								
Tons .....	33,202,081	32,218,527	30,276,858	28,624,319	14,220,645	14,000,259	4,663,302	4,598,636
Per wagon (excluding mineral)	168	158	189	172	191	183	150	144
<b>NUMBER OF CATTLE TRUCKS (PER STATISTICAL RETURN IId)</b>								
	7,915	7,600	6,231	6,620	3,206	3,211	1,149	1,237
<b>HEADS OF ORIGINATING LIVE STOCK. (PER STATISTICAL RETURN XIV.)—</b>								
Number .....	4,990,250	5,310,275	3,690,754	4,198,887	1,616,108	1,959,392	638,695	648,438
Per wagon .....	630	699	592	634	504	610	556	524
<b>NUMBER OF BRAKE VANS (PER STATISTICAL RETURN IId)</b>								
	5,648	5,590	4,438	4,630	2,260	2,292	928	932
<b>NUMBER OF RAILWAY SERVICE VEHICLES AND HORSES FOR SHUNTING (PER STATISTICAL RETURN IId)—</b>								
Coal, coke, ash and sand wagons	9,740	10,314	9,314	9,825	4,524	4,649	148	164
Ballast wagons .....	4,399	4,852	2,090	2,198	2,121	2,199	855	902
Other wagons, &c. ....	2,574	2,583	2,438	2,339	1,541	1,571	735	760
Total .....	16,713	17,749	13,842	14,362	8,186	8,419	1,738	1,826
Horses for shunting .....	154	168	240	260	31	35	35	37

£100,000 less in operating expenses, but has taken £116,000 less from reserve, so that its net receipts have fallen from £154,000 to £66,000. The L.N.E.R. has made economies of £40,000 in maintenance and £33,000 in operating expenses, but has carried £66,000 more to reserve. Its profits are increased by £43,000. The L.M.S. has reduced its losses by £21,000 and the Southern has increased its profits by £32,000, maintenance costs being reduced by £38,000.

#### Table 23—Receipts and Expenditure in Respect of Hotels, Refreshment Rooms and Restaurant Cars

The L.M.S. has earned £70,000 more in receipts and its profits are increased by £50,000. The profits of the L.N.E.R. and G.W.R. are respectively £36,000 and £32,000 greater than a year ago, while the loss on the Southern has been reduced to the trifling figure of £588.

#### Table 24—Mileage of Lines Open for Traffic, and Receipts per Route Mile

There is very little change in the mileage owned by the companies, and as the railway receipts except on the L.M.S.

have increased, the earnings per route mile show an improvement with this one exception.

#### Table 25—Stock of Coaching Vehicles

There has been some diminution both in the number of carriages and the number of seats, whilst on the whole the number of passenger journeys has increased, so that there is an improvement in the average number of passengers carried per carriage and per seat. The Southern Company's figures are particularly good.

#### Table 26—Stock of Wagons

All companies have reduced their stock of ordinary wagons and the increase in tonnage of merchandise and minerals traffic has brought about an improvement in the average number of tons carried per wagon per annum. On the other hand, the average number of head of live stock conveyed per wagon per annum has diminished except on the Southern, that company having reduced its stock of cattle wagons by 88. The number of service vehicles and of horses for shunting

have been reduced all round. The diminution in shunt horses in the past ten years has been very considerable, viz.,

	1933	1923	Decrease
L.M.S.R. ....	154	391	237
L.N.E.R. ....	240	547	307
G.W.R. ....	31	125	94
Southern ....	35	67	32
	460	1,130	670

Table 27—Train and Engine Miles and Receipts per Train-Mile

All companies except the L.M.S. show increases in train mileage, the Southern being up nearly 3,000,000 passenger train-miles due to the extension of electrification. That

company now no longer holds the premier position for earnings per train-mile, the G.W. being highest in passenger and the L.N.E. in goods, as well as in passenger and goods combined.

Table 28—Summary of Financial Results Secured

Reference has already been made in the notes on the preceding tables to the main figures of receipts and expenditure. It will be seen from Table 28 that the L.M.S. has earned £31,000 more net revenue from "J" Joint Lines and the L.N.E.R. £60,000.

Miscellaneous receipts (net) have diminished except on the Southern where an increase of £120,000 is shown. Miscellaneous charges are slightly higher all round.

Table 27—Train and Engine Mileage and Receipts per Train-Mile, Years 1932 and 1933

	L.M.S.R.		L.N.E.R.		G.W.R.		Southern	
	1933	1932	1933	1932	1933	1932	1933	1932
<b>A. MILES RUN IN RELATION TO THE COMPANY'S TRAFFIC RECEIPTS. TOTAL TRAIN-MILES (PER STATISTICAL RETURN XII)</b>								
Coaching .....	92,741,739	90,749,740	63,626,890	62,741,463	39,527,651	39,522,253	57,551,292	54,552,845
Goods .....	50,741,808	51,178,609	39,388,940	39,247,194	21,898,017	22,005,056	7,188,730	7,145,171
Total .....	143,483,547	141,928,349	103,015,830	101,988,657	61,425,668	61,527,309	64,740,022	61,698,016
<b>B. MILES RUN IN RELATION TO THE COMPANY'S EXPENDITURE. TOTAL TRAIN-MILES (PER STATISTICAL RETURN XII)</b>								
Coaching .....	92,750,948	90,732,525	63,779,699	62,886,254	39,584,985	39,422,777	57,541,930	54,587,974
Goods .....	50,861,777	51,369,196	39,460,438	39,292,251	21,867,055	21,966,916	7,109,067	7,064,679
Total .....	143,612,725	142,101,721	103,240,137	102,178,505	61,452,040	61,389,693	64,650,997	61,652,653
<b>C. MILES RUN BY THE COMPANY'S ENGINES (PER STATISTICAL RETURN XII). TOTAL TRAIN-MILES</b>								
Coaching .....	92,150,131	91,606,065	66,350,886	65,617,526	39,581,585	39,425,059	56,661,151	53,697,541
Goods .....	51,780,095	52,503,059	41,466,484	41,120,062	22,045,677	22,138,269	6,886,177	6,853,264
Total .....	143,930,226	144,109,124	107,817,370	106,737,588	61,627,262	61,563,328	63,547,328	60,550,805
<b>Shunting Miles—</b>								
Coaching .....	7,427,703	7,577,062	4,073,929	4,027,910	2,719,135	2,661,648	2,522,980	2,606,794
Goods .....	35,556,634	35,887,190	29,444,211	29,602,560	18,742,445	18,811,524	6,605,633	6,594,348
Other Miles (Assisting Light, &c.) .....	21,891,729	22,180,681	14,170,012	14,242,978	6,644,789	6,742,718	4,516,184	4,525,214
Total engine miles .....	208,806,292	209,754,057	155,505,522	154,611,036	89,733,631	89,779,218	77,192,125	74,277,161
Percentage train-miles of total engine miles .....	68.93	68.70	69.33	69.04	68.68	68.57	82.32	81.52
<b>PASSENGER TRAIN RECEIPTS. PER ACCOUNT NO. 10</b>								
Per train-mile .....	5s. 2.83d.	5s. 4.00d.	4s. 11.49d.	5s. 0.42d.	5s. 3.61d.	5s. 3.92d.	5s. 2.0d.	5s. 4.00d.
<b>GOODS TRAIN RECEIPTS. PER ACCOUNT NO. 10</b>								
Per train-mile .....	13s. 1.69d.	13s. 2.19d.	13s. 5.76d.	13s. 5.92d.	12s. 8.22d.	12s. 6.29d.	13s. 2.68d.	13s. 8.80d.
<b>TOTAL TRAFFIC RECEIPTS</b>								
Per train-mile .....	8s. 0.38d.	8s. 1.96d.	8s. 2.59d.	8s. 3.48d.	7s. 11.20d.	7s. 10.81d.	6s. 0.74d.	6s. 3.67d.



Table 28—Summary of Financial Results Secured, Years 1932 and 1933

	L.M.S.R.		L.N.E.R.		G.W.R.		Southern	
	1933 £	1932 £	1933 £	1932 £	1933 £	1932 £	1933 £	1932 £
Total expenditure on Capital Account (No. 4)	452,974,229	453,037,579	350,076,791	349,349,642	182,504,569	181,084,289	164,336,509	163,139,152
Gross receipts from business carried on by the Company (No. 8)	65,291,119	65,496,079	48,789,274	48,678,700	28,423,656	28,462,343	22,598,417	22,329,065
Revenue expenditure on businesses carried on by the Company (No. 8)	55,185,091	56,318,696	41,496,163	41,979,163	23,970,743	24,430,291	18,092,686	18,349,392
Net receipts of businesses carried on by the Company (No. 8)	10,106,028	9,177,383	7,293,111	6,699,537	4,452,913	4,032,052	4,505,731	3,979,673
"J" Joint Lines—Company's proportion of Net revenue (No. 8)	53,974	22,677	242,401	182,468	131,779	127,661	Dr. 45,706	Dr. 47,766
Miscellaneous receipts net (No. 8)	2,266,839	2,404,799	1,120,950	1,212,934	985,331	1,024,686	1,302,368	1,181,450
Miscellaneous charges	1,714,156	1,700,036	933,342	928,081	741,462	724,996	222,596	219,248
Total net income (No. 8)	10,712,685	9,904,823	7,723,120	7,166,858	4,828,561	4,459,403	5,539,797	4,894,109
Appropriation from reserve or contingency fund	—	93,044	50,000	50,000	1,350,000	1,100,000	—	—
Profit on realisation of investments	—	—	—	—	71,529	605,927	—	—
Interest on loans and debenture stocks (No. 9)	4,439,171	4,439,171	4,255,105	4,255,105	1,619,809	1,549,804	1,943,167	1,753,167
Dividends on guaranteed and preference stocks (No. 9)	6,213,860	5,558,696	3,492,949	2,960,543	3,344,699	3,347,118	2,751,278	2,751,278
Balance after payments of preference dividends (No. 9)	59,654	—	25,066	1,210	1,285,582	1,268,408	845,352	389,664
<b>DIVIDENDS ON ORDINARY STOCK (No. 9)—</b>								
Interim	Nil	Nil	Nil	Nil	107,324	214,649	—	—
Rate per cent.	Nil	Nil	Nil	Nil	$\frac{1}{2}$	$\frac{1}{2}$	Preferred Nil	Preferred Nil
Final	Nil	Nil	Nil	Nil	1,180,568	1,073,243	827,598	275,866
Rate per cent.	Nil	Nil	Preferred Nil	Preferred Nil	$2\frac{1}{2}$	$2\frac{1}{2}$	Preferred 3	Preferred 1
			Deferred Nil	Deferred Nil			Deferred Nil	Deferred Nil
Total	Nil	Nil	Nil	Nil	1,287,892	1,287,892	827,598	275,866
Rate per cent.	Nil	Nil	Preferred Nil	Preferred Nil	3	3	Preferred 3	Preferred 1
			Deferred Nil	Deferred Nil			Deferred Nil	Deferred Nil
Surplus	59,654	—	25,066	1,210	—	—	17,754	113,798
Deficit	—	—	—	—	2,310	19,484	—	—
Brought forward from previous year	—	—	31,577	30,367	42,989	62,473	207,173	93,376
Carried forward to subsequent year	59,654	—	56,643	31,577	40,679	42,989	224,927	207,173

The net income of each company is improved as follows:—

	1933 £	1932 £	Increase £	Increase Per cent.
L.M.S.R.	10,712,685	9,904,823	807,862	8.16
L.N.E.R.	7,723,120	7,166,858	556,262	7.76
G.W.R.	4,828,561	4,459,403	369,158	8.28
Southern	5,539,797	4,894,109	645,688	13.19
Total	28,804,163	26,425,193	2,378,970	9.00

The improvement in net income has enabled the L.M.S. to pay  $3\frac{1}{2}$  per cent. instead of 3 per cent. on its 4 per cent. preference stock and  $4\frac{1}{2}$  per cent. as against  $3\frac{1}{2}$  per cent. on its 5 per cent. redeemable preference stock, but the 4 per cent. preference stock 1923 and the ordinary stock still go without dividend. £59,654 is carried forward as against nothing at the end of 1932. £2,200,000 additional net revenue will be required before the full dividends on all the prior charges can be paid.

The L.N.E.R. has again drawn £50,000 from reserve but

its carry forward is increased by £25,000. The 4 per cent. first preference stock receives 2 per cent. instead of 1 and the 5 per cent. redeemable preference stock  $2\frac{1}{2}$  per cent. instead of  $1\frac{1}{2}$ . Nearly £3,750,000 additional net revenue will be required before anything can be paid on the preferred ordinary stock.

In order to continue to pay 3 per cent. on its ordinary stock the G.W. Company has withdrawn £1,350,000 from the contingency fund and brought in £71,529 profit on realisation of investments. The Southern Company has increased its dividend on its 5 per cent. preferred ordinary stock from 1 per cent. to 3 per cent. and has increased its carry forward by £17,000.

Whilst, therefore, the financial results for 1933 are distinctly better than in the previous year it will be realised that much greater improvements in trade are necessary before the railway industry in this country can be regarded as even moderately prosperous. It must always be borne in mind also that the wages cuts are still in operation.

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